

SUNite

Shedding some light on UFOlogy and UFOs



"I will bet anything that the signals intercepted when we were in the Dallas area were all CPS-6B signals. I feel sure that at some altitude near 40000 ft I could have intercepted any of the sights (sic) of OK city, Duncanville and Houston."

Frank McClure (ECM#2 on the RB-47) November 1, 1971 letter to Phil Klass

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UFOlogy's "best case"

About a year ago, Paul Kimball privately accused me of taking on only easy UFO cases and felt that skeptics were purposefully ignoring the RB-47 UFO incident. I replied that the reason skeptics/debunkers/disbelievers/whatever could not explain the case was because there just wasn't enough information and, without a time machine, it would be impossible to satisfy UFO proponents. I felt there was little hope of any success in resolving the case but, I was intrigued by his challenge. Therefore, I decided to conduct a review of the case.

I was of the opinion that all the explanations to date had their flaws. That would include Klass and Brad Sparks, who had "self-crowned" himself the "RB-47 expert" (Just look at his e-mail address). In order to address the challenge, I began some private conversations with several UFO skeptics in an attempt to review the case materials to see what might have been overlooked or erroneously reported. My intentions were not to "debunk" or explain the case because I thought those expectations were too high. I decided the best thing to do is see if all possibilities had

been covered and review the arguments that had been presented to date.

Some might suggest that I am questioning the honesty/integrity of the air crew on this RB-47. I strongly disagree with that characterization. As a retired submariner, who has conducted his share of intelligence gathering missions that were similar to what the RB-47 crews were performing, I know the risks they took under very adverse and stressful conditions. I have nothing but respect for what they accomplished. However, I will not allow my respect for them to prevent me from suggesting the possibility that errors could have been made at the time or their memories of the event can be flawed.

One of the skeptics I have been in contact with about the case is Marty Kottmeyer. I sent him a copy of Sparks' article on the subject and, after reading it, he gave me the following response in a letter dated March 31, 2011:

I have to say after mulling it over this evening, I ended up with a big old silly grin.

Left: For this illustration, the background is an image I took of the Rosette Nebula a few years back. The B-47 comes from Flight Simulator X.

Front: The B-47 on display in Savannah, Georgia at the eighth air force museum.

What I figured out was not so much the solution as the punch line. You have the critical issue: Aliens with radar?

It does seem rather odd that the UFO would decide to use an S-band radar signal to track or test an Air Force RB-47. It is this clue that seems to have been glossed over/down played by those presenting this case as the best evidence.

I want to thank all the people, who were involved in this year long effort. Those in the Reality Uncovered group were very helpful in this effort (specifically the forum member "Access Denied", who unearthed some important documentation). Hopefully, this issue will help others, who might want to pursue this case in the future.

TABLE OF CONTENTS

Who's blogging UFOs.....	2-3
Comments from my mail box.....	3
The Roswell Corner	4
The RB-47 case: UFOlogy's best evidence?.....	5-6
An RB-47 UFO case primer.....	7-12
RB-47 Phase I: The up-scope incident.....	13-18
RB-47 Phase 2: The 1010Z encounter.....	19
RB-47 Phase 3: The approach to Duncanville.....	20-25
RB-47 Phase 4: Pursuit!	26-30
Aftermath.....	31-32
Various theories for the UFO lights...	32-34
RB-47 Conclusions.....	35-36
The radar contacts from 1955.....	36
PhilKlassvsLewisChaseandhowitrelateto the Echo/Oscar flight shutdowns.....	37-38
UFOlogy drops the ball!.....	38
UFOs on the tube.....	39
Buy it, borrow it, bin it.....	39

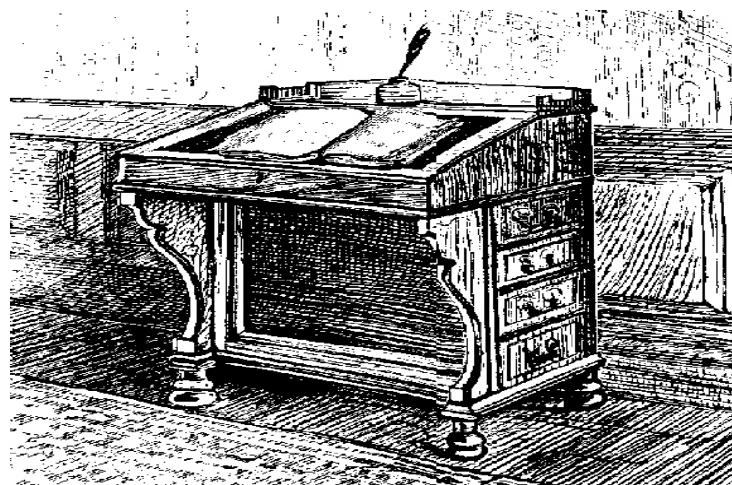
Robert Sheaffer rehashed the Betty and Barney Hill story with the help of James Macdonald of NH. I have been aware of Mr. Macdonald's article for some time and it is interesting reading. Recently, I had the time to make a night trip into the White Mountains to check out his article. I hope to put together an article in the next few months.

Somebody thought they saw rod UFOs during a Colts-Saints NBC broadcast. The intrepid individual froze one of the frames of several objects flying behind a cathedral in New Orleans. They must never watch many NBC Sunday night games as it is common for them to broadcast a time-lapsed sequence showing planes landing at an airport or cars moving through the city. These are simply airplanes in a time lapse image and nothing more. I couldn't believe that Spiegel found this compelling. He would later publish the explanation. I guess it is better to admit you were wrong than have somebody point it out elsewhere.

Robert Sheaffer provided us with the details regarding a UFO video shot at a high school football game in Scottsdale, Arizona. Ian Ridpath had noted it and sent out an e-mail about it and suggested that these were parachutists with pyrotechnics attached to their legs. I had looked at the video and noted that the weatherman, Marc Mancuso, did not appear to be very bright when he stated that he guessed we would never know what the source of the lights were. The video was very similar to the Golden Knights and Red Bull parachutists videos (referred to as the "silver surfer UFOs) mentioned in SUNlite 3-1. I began to look into the possible sources and discovered that the video was shot from Horizon High School's football stadium west stands at an azimuth of about 140 degrees. I followed this line on Google Earth to the first open area and it came to Salt River Fields. About this time, Bob e-mailed the group stating he had isolated it to a "Halloween Balloon Spooktacular" where a group of skydivers would perform at 9PM. The location was at....Salt River Fields! Bob's quick work closed the case. The funny thing is that a few UFO blogs were presenting this as an

Who's blogging UFOs?

Hot topics and varied opinions



other inexplicable event when just a tiny bit of a homework would have resolved it. I wonder if Mancuso knows the source of the videos yet or is he still denying that it can be explainable.

Missouri continues to be a hotbed of IFO activity! The UFO examiner says so and then posted some videos from....wait for it....Lee's Summit! Yes, the same place that the KC flight demonstration team operates from, is the location of a major UFO sighting with videos! Interestingly the UFO, which Marsh refers to as a "huge hovering disc", looks a lot like some planes in formation complete with anti-collision strobes. This happened on October 31, 2011, which was a Monday night. Was KC flight out over Lee's Summit that night? It is no surprise that they were part of the Monday Night Football game festivities at Arrowhead stadium, which is about 11 miles from the witness' location. According to the media story, they were up in air in a holding pattern over Lee's Summit before the game. The witness heard this explanation and denied that could be the case because it was all one object and acted so strangely. On the video, she proclaimed it was like the Close Encounters spaceship! Where have I heard that reasoning before? Two days later, Marsh published an account

by another witness who identified them as jets. One wonders why the UFO examiner did not bother to do a cursory examination of the events before attempting to promote them as something exotic. If this was one of the better UFO reports from the Lee Summit area, it makes one question the rest of the UFO reports from this location.

Seattle also had some UFO reports, which included a video. They looked and behaved a lot like Chinese lanterns. It always amazes me how people still figure these are UFOs. Didn't they read my IFO university article on Chinese lanterns in SUNlite 3-1 (page 23)?

There were some UFO reports from Wisconsin in mid-November. This included videos that looked vaguely familiar. They looked like military flares being dropped from a jet fighter seen from a distance. Sure enough, the witnesses (from three different locations) were looking in the direction of the Volk Military Operating Area (MOA). One has to wonder if this is the case.

Kathleen Marden and Denise Stoner announced an abduction experience research project. Among the various items described is an abduction experiencer ET technology survey, which is supposed to "increase our knowledge of ET technology". Nothing can be learned from these anecdotal accounts unless they produce an actual alien implant that can be analyzed by scientists outside the UFO community. The same can be said for the UFO experiencer survey. This is more pseudo-scientific nonsense.

The November/December 2011 Skeptical Inquirer presented an article by James McGaha and Joe Nickell with the title: 'Exeter Incident' Solved! The bottom line of the article is that USAF aerial refueling operations being conducted at the time of the initial sightings were the cause of the UFO reports. CSI's web site has not been updated but I expect the article to appear in the next few months.

The Rendlesham Incident Forum was

Who's blogging UFOs? (Cont'd)

closed down recently. Prior to the web site going down, Jim Penniston and John Burroughs promised new revelations in the future. Do people actually still believe them?

I have received an e-mail with some links by an individual in Germany, who has taken the time to debunk some UFO videos. The first was the MIG-21 video, which I discussed in SUNlite 3-2. It just confirms what I wrote about the video. The other video came from the Ste-phenville sightings. When I saw this video many years ago, I felt it was a star shot with a slow shutter speed. Now my suspicion is confirmed.

Robert Sheaffer's bad UFOs has some excellent historical documents available for reading. They are interesting glimpses into the skeptical past regarding Phil Klass and Robert Sheaffer. Sheaffer's exchange of letters with Hynek about his book is most interesting.

The blog "Ghost Rockets" recently appeared and has some interesting discussions about top secret aircraft programs from long ago. It makes for interesting reading. I am aware the author of the blog also writes about UFOs. This will be worth monitoring.

Billy Cox continues to pound the story about the UFO Petition and the Office of Science and Technology's response. I saw Leslie Kean once again promote the idea of a government sponsored UFO study. I am astonished that such individuals would want to repeat the Condon Study. What makes Kean think the results would be different and, if they were the same, would she then complain that it was "fixed" as UFO groups did fifty years ago? There is no way that politicians will stick out their necks to waste money looking into this sort of thing. If UFOlogists want to conduct such a study, they need to get a private source of funding and an independent group of scientists to accomplish such a task. Kean appears to be quite willing to spend the taxpayers dollar but one wonders how far her dedication will go? Does any of her earning from book/DVD sales go towards UFO studies?

People in Cowley County, Kansas were exposed to a "craft" being transported through their town. This sort of thing has happened before and it usually is some form of military vehicle. Reports are the object was an X-47B drone.

Imagine my shock when the UFO examiner stated that multiple Pennsylvania witnesses were reporting multiple UFOs were "falling from the sky" on the nights of December 11 and 12th. Hmm....as an astronomer, I think this may have had a lot to do with the Geminid meteor shower, which was active during this time period (maximum was on December 14th). The descriptions all sounded like bright meteors.

James Carlson took on Robert Hastings' interpretation of the F. E. Warren missile shutdown back in 2010. Among many things, Carlson pointed out how Hastings' attempted to make himself appear legitimate by getting it posted on the Reuters' newswire. Actual Reuters reporters have a standard by which they are held for being factual. Hastings was able to bypass this standard through a newswire service he pays to post his stories. Reuters picked it up (as they do with many such stories) but did not endorse the truth of Hastings' claims. It was a self-promotion gimmick. Is this any surprise?

Tim Hebert had a very interesting article about the Echo/Oscar flight shutdown stories and how it relates to the oral histories passed down of the years between Missile crews. By the time he arrived in 1981, he heard nothing of those shutdowns but did hear of stories of haunted missile silos from the 1960s. I have experienced similar stories in my naval career. A submarine is a pretty tight group and oral traditions do get passed down. This "tribal knowledge" can be passed on and, if the event is memorable enough (especially if it was classified or exotic), it would have been retained (although the exact details would be lost). Something like the Echo/Oscar shutdowns would have been "passed down" between the crews. The absence of this "tribal knowledge" indicates the shutdowns were not as spectacular as we are led to believe by Salas and Hastings.

Comments from my mail box

I received several comments about some previous issues, that I wanted to present to my readers. I also needed to explain that two of those who contacted me, appeared to misunderstand the content of those articles.

The first comment came from Anthony Bragalia, who has done all sorts of research regarding the Wanaque sightings in 1966. He seemed to get the impression that I was commenting about his work but I was not. I gave a link in the commentary to the UFO Iconoclasts blog in the "Who's Blogging" section but he missed it and thought it was about his articles on the case. Bragalia did not present the M31 photograph, which was what I was describing. It is important to note that this photograph was presented in an article about the sightings from a 1967 magazine. Clearly, not all the Wanaque sightings were legitimate as this image showed.

Another comment came from James Moseley, who took offense about Bob Young linking the Columbus UFO crash story he had written about and Kecksburg. According to a postcard, he sent me, "There is NO connection whatsoever between Kecksburg and Scully or Kecksburg and Columbus (NO bodies were ever claimed at Kecksburg!)." I think Mr. Moseley missed the point of the article. Bob Young was trying to demonstrate how the various parts of the stories told about Columbus and Aztec also surfaced in the Kecksburg tales. He demonstrated there was a link between some parts of the stories and indicated these "mysterious sources" were drawing upon these past tales to construct new tales regarding Kecksburg. Bob Young also pointed out to me that at one point, a witness did describe to Stan Gordon that a lizard-like alien was found in the Kecksburg object. So, I guess there was a body after all.

I also received e-mails from Tom Wermann and William Jones of Ohio MUFON pointing out that my comment about the Lake Erie videos in SUNlite 3-4 was incorrect. I had called the individual Paul Hill. His name was actually Michael Lee Hill. I am not sure where I got the name Paul as the article I linked clearly identified him. Mea Culpa!

The Roswell Corner

Getting the band back together

Kevin Randle announced that the Roswell "dream team" (Carey-Schmitt-Randle) is assembling and promised new and exciting Roswell revelations. He has forgiven Don Schmitt for his past lies and sloppy/erroneous research and is now working with the infamous Carey/Schmitt authors to create a new opus that will put all skeptics to shame. If it is anything like "Witness to Roswell", I would not expect much other than more unsubstantiated rumors, second (and third) hand stories, and unverifiable claims made by aging individuals who were located in Roswell at the time.

Randle then announced that Tony Bragalia and Chris Rutkowski were going to join this dream team. Rutkowski is an apparent agnostic about Roswell but we know that Mr. Bragalia makes some rather wild claims that will fit in well with Schmitt and Carey's approach. I guess that means they are going to endorse his flawed work about Nitinol among other things.

Just as I was finalizing this issue, Randle announced that David Rudiak was also now a member of the "dream team". This is no shock but he also mentioned that he had asked skeptics to join the "team" but they turned him down.

About a month before this, I had posed the question to several Roswell skeptics as to what their answer might be if they got an "invite" to the dream team (at that point in time, none reported being asked to join). I could not see any condition, where I would want to be involved and neither could anybody else. I am curious as to which "skeptics" were asked. It is not that we are not interested at looking at new information but the usual rumor, innuendo, and tall tales that have been presented seems to be what is going to result here. Actual verifiable documentation that supports the alien space ship crash version of events, is what they should be looking for.

It is noteworthy that the "dream team" did not include Stanton Friedman. Unlike Schmitt's past transgressions, Fried-

man's differing opinions about Roswell seems to make him "unfit" to be included in this august company! Perhaps there was only so much room for all the egos. Shortly after the initial announcements, Kevin Randle posted the first "discovery" of the group. It was not really new. According to Randle, everyone pretty much knew the debris was weather balloon materials prior to the arrival of Irving Newton. This is supposed to mean it is evidence for a conspiracy. Of course, Randle ignores the testimony of Newton, who had stated that Ramey suspected it was from a weather balloon before he even arrived. Based on this, it is no surprise that before Newton arrived, several individuals had already told the media it was a weather balloon.

What this demonstrates is that, in its first swing at the Roswell case, the "Dream Team" immediately declared the case was a conspiracy/cover-up. So, instead of the promise of a new approach on the case, we got the same old one. I am shocked!

Who believes Roswell involved aliens?

A recent article with the title "Roswell, Aliens & Belief - Who Believes that Aliens Landed at Roswell?" by Frank Borzellieri, appeared in the latest issue of Skeptic magazine. Borzellieri conducted an on-line poll to see what kind of people believe Roswell involved an alien spaceship crash. The bottom line is the following characteristics apply to those who believe in Roswell:

1. Religious beliefs
2. High School education or less
3. Conservative political beliefs

This was something of a shock to me because what I have seen of many Roswell supporters is that they were educated (or claimed to have college degrees) and liberal in their political positions. Maybe I have been talking to the wrong individuals. This poll, while interesting, does not add much to the Roswell story. I figured I would mention it here for information purposes only.

Debris everywhere!

Art Campbell sent me an e-mail alerting me to an upcoming revelation that the crash on San Augustin did occur and they have found debris that prove it. I

have heard this story before. The problem I have with the article I read is that they make all sorts of claims that the debris they found came from 1947 but there is no proof this. Couldn't it have been left at the site in 1980, 1990, or 2000? I just can't buy this seriously but we will have to wait. Stay tuned.....

Marcel passes lie detector test!

At least that is what Tony Bragalia's headline read. Bragalia apparently used the software given to him by this research institute that uses it for determining if people are lying. According to Bragalia, this software takes the transcripts of an interview and analyzes them for deceptive content. It all sounded pretty hokey to me when the claim is that you can take any transcript and tell if somebody is lying or not.

I decided to pull the thread on this and found some interesting information. The Mental Floss blog had a description of the software Bragalia was using. It seems it was primarily designed for looking at fraudulent e-mails/spam. I am not sure how well it transitions to transcripts, which is what Bragalia was doing. Their web site does have an on-line deception detector tool, which is probably what Bragalia used for his article. As a test, I used the deception detector tool by entering several texts from the bible (there is a minimum of 50 words required). Some of the texts were given the label as deceptive. I then lied to the on-line tool several times and it recognized no deception! In another test, I ran a few Frank Kaufmann (who has been discredited as a Roswell witness) quotes into the tool and it still reported no deception. Additionally, I was able to get some quotes made by Marcel and Dubose to come out "deceptive". This tells me that this tool may work for detecting e-mail fraud but, in my opinion, it is inadequate for what Mr. Bragalia is proclaiming.

The RB47 case: UFOlogy's best evidence?



An RB-47 in flight. Note the various bumps/blisters on the underside of the aircraft and wings. (Source: USAF)

Introduction

This case is a rather extensive event that is composed of two to three separate incidents that UFOlogists have linked together over the years as proof that a UFO was monitoring the movements of a USAF RB-47 aircraft through the southern United States. The UFO was seen by the flight crew and its electronic signature was monitored by the intelligence officers inside the plane. It was also reportedly tracked by ground radar as well. This makes it an important case for UFOlogists because it contains visual observation and confirmation of these observations with electronic data.

UFOlogists enjoy presenting cases that are decades old because they know there is little that can be added to what is already known. Much of what is presented by UFO proponents is what can be found in the Blue Book files and in research conducted by those who examined the case previously. However, that does not mean a case is considered good evidence for something unknown to science. A mysterious incident in 1957 can remain mysterious simply because there is just not enough in the way of cold hard facts (things that can not be denied and must be accepted) to support an explanation.

Objectives

Despite my reservations about looking at this case, I decided to discuss it with several skeptics and see if we could come up with any information that had not been previously discovered/revealed. My intentions were to take a look

at the arguments for and against to see how good they stood up to serious examination.

I felt there was little hope of finding an acceptable explanation for this case because of its status in UFOlogy. It was already voted by many as the best UFO case ever, which means that no matter what I proposed, I seriously doubted that UFO proponents would accept it. I would also be vilified/ridiculed for having the nerve to suggest any explanation was plausible. Despite these concerns, I received positive feedback and felt the endeavor would be worth the effort.

Acquiring the documentation

The first thing was to accumulate everything that had been presented about the case. Sparks' article, while proclaimed the best UFO investigation of the event, was unavailable for many years, unless one had a copy of Jerome Clark's expensive UFO encyclopedia. About five years ago, after being unable to obtain an electronic copy from others, I obtained a copy of it by driving down to the Boston Public Library. I could have saved myself the gas because in the last few years, it has finally appeared on the internet. Several web sites now contain the contents. This web site ([http://wiki.razing.net/index.php/\(1957/07/17\)_RB-47_radar/visual_multiple-witnesses](http://wiki.razing.net/index.php/(1957/07/17)_RB-47_radar/visual_multiple-witnesses)) and NICAP now contain the document in question for all to see.

The Klass explanation can be found in the Blue Book files (because he sent it there in the 1970s) and in his book UFOs: Ex-

plained

What was missing was the supporting documentation and interviews he conducted. Luckily, he left copies of many of his personal files with the American Philosophical Society. For a fee, I was able to get his entire RB-47 file consisting of about 300 pages of letters, notes, interviews, and technical data.

Other pertinent materials were collected by various members over several months. This included obtaining copies of the notes Dr. McDonald made in his conversations with the crew members and obtaining technical information about the aircraft. Isaac Koi was helpful in obtaining a copy of the Summer of 1977 CUFOS bulletin, which contained some pertinent information. Due to my obligations of writing SUNlite, family matters, and personal interests elsewhere, the going was slow but steady as the group moved forward over the months.

Arguments for and against

The original paper written about this case was by Dr. James McDonald back in the late 1960s after the Condon report had concluded that it could not be explained. McDonald's stamp of approval had immediately made this case a "classic".

Phil Klass took on the case in 1971 and wrote a rather extensive study on the incident. Klass suggested that it was equipment malfunction, a bright fireball, an airliner, and reception of ground radar signals that made the event appear mysterious to the air crew. I was aware there were some errors in his explanation but the overall explanation seemed plausible to most UFO skeptics, including myself.

In 1977, The Center For UFO Studies (CUFOS) published a rebuttal. It is not widely known and did not seem to make much of an impact. The main argument had to do with a letter between Dr. Hynek and Lewis Chase, the pilot, who Phil Klass had communicated with in his examination of the case. Chase chose to clarify his position on what transpired and felt that Klass had done a good job on the radar data but had not fully explained the case.

This is pretty much where the case stood until the late 1990s, when the case was revived by Brad Sparks. He had written a lengthy entry in Jerome Clark's *UFO Encyclopedia* that was a very extensive rebuttal to Klass' explanation for the case. The article begins by promoting itself as solid proof of UFOs being something other than misperceptions and hoaxes:

*"New findings by aerospace researcher and UFO investigator Brad Sparks establish this case as the first scientific proof of the existence of UFOs, and it uses the first-ever calibrated electronic measurements of microwave signals which were emitted by the UFO and which correlate precisely with eyewitness visual observations and radar tracks."*¹

I think this description is a bit of hyperbole. Some examples are:

- It is described as scientific proof. Scientific proof can be replicated and is subject to far higher protocols/review than this article experienced. Even the Condon study did not consider the case "scientific proof" of anything more than they could not explain it.
- Sparks never proves the signals were emitted by the UFO. He makes that link but there is not one iota of real proof to establish the UFO was the source of the signals.
- Additionally, the observations of the witnesses do not "correlate precisely" with the signals measured. The observations of the crew were estimates, which are subject to error. Stating they are "precise" is just more exaggeration.

Klass never bothered to publicly argue with Sparks on the case. By the time this was written, he was at an advanced age and apparently had little interest in such an exchange. As a result, Sparks was "the last man standing" and could declare his investigation had withstood scrutiny.

Case summary

A brief overview of the case is necessary at this point. Prior to discussing the case, I have a section where all the pertinent facts and information is pre-

sented so the reader can get a basic idea of all the details that were needed to understand what is being discussed. I then broke the case down into four different sections.

The first section of the flight occurred when the RB-47 crossed the gulf coast in Mississippi. One of the operators detected a radar signal that acted strangely as if it were an aircraft flying by or around the RB-47. I refer to this part of the flight as "The Up-scope incident".

The second section of the case occurred some time later when the RB-47 was flying westward from Mississippi to Louisiana. A very bright light flew across the front of the RB-47 and then disappeared. I have labeled this "The 1010Z encounter".

After this event, the plane continued westward into Texas. As they flew westward, the operators recorded many radar signals from different directions. A ground radar station became involved and reportedly tracked the UFO as well. The pilot and copilot saw a UFO in the same general direction from which the signals were emanating. I call this section of the sighting as "The approach to Duncanville".

Interested in the UFO, the RB-47 turned towards it and began to pursue it. What transpired is a series of maneuvers as the RB-47 tried to close the distance. However, the UFO was elusive and would vanish every time the plane got close. The RB-47 would eventually start to run low on fuel and had to depart for their home base in Kansas. I have tagged this final section of the UFO event as "The Pursuit".

Simulation

During my efforts to understand this case, I chose to see what it would be like to fly a B-47 on the course described to get a feel for the conditions under which this all transpired. The Microsoft Flight Simulator program (Flight Simulator X) is an excellent device for such a thing. It can give one the feel for what the pilot had to deal with while flying his aircraft and some limitations he encountered. You will see screen shots of the aircraft throughout this article using this program. Additionally, the program pro-

vides a celestial simulation that proved to be interesting in pursuing some celestial explanations that had been made in the past. While the celestial mechanics were correct compared to planetarium programs, the twilight settings were not very accurate even though the sun rose at the correct time. This carried forward in the imagery in this issue. The sky should have been brighter than the simulation showed when the plane was near Dallas.

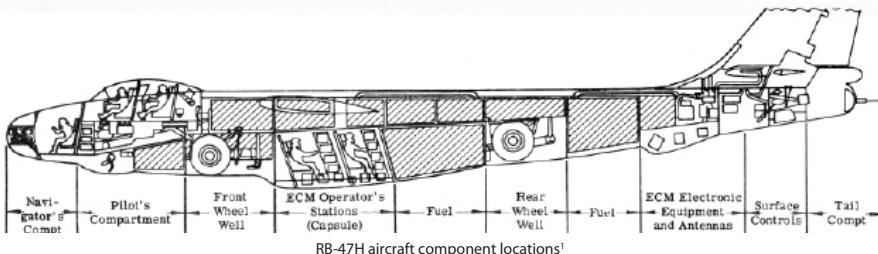
Presentation

This issue will be dedicated to presenting what I discovered in my examination of the case. Some of it will be new and some of it will be more of the same stuff previously mentioned. It is up to the reader to judge if it has any merit. Hopefully, it will add some new information and views about the case that were never presented or publicly considered prior to this publication.

Notes and References

1. Sparks, Brad. "RB-47 radar/visual case". *The UFO Encyclopedia: The Phenomenon From The Beginning, Vol. II: L-Z, 2nd Edition*. Jerome Clark editor. Detroit, MI: Omnipress, Inc.; 1998. Page 761

An RB-47 UFO case primer



The purpose of this section is to familiarize the reader with the technical particulars. It will provide information that will be necessary in evaluating the arguments being presented.

The crew

The RB-47 had six crew members. Three were the flight crew and the other three were the Electronic Counter Measures (ECM) officers who were referred to as "Ravens". The Ravens were in a capsule that was located in the bomb bay of the RB-47. The names of the crew members were:

Pilot: Lewis Chase

Copilot: James McCoid

Navigator: Thomas Hanley

ECM #1: John Provenzano

ECM #2: Frank McClure

ECM#3: Walter Tuchscherer

It is hard to determine the ranks of all the crew members at the time but the report states that Chase was a Major (O-4) and McCoid was a first Lt. (O-2). The navigator's rank was not listed but he was probably a first Lt or Captain (O-3). The Ravens were probably Captains at the time. All were very experienced operators and knew their equipment.

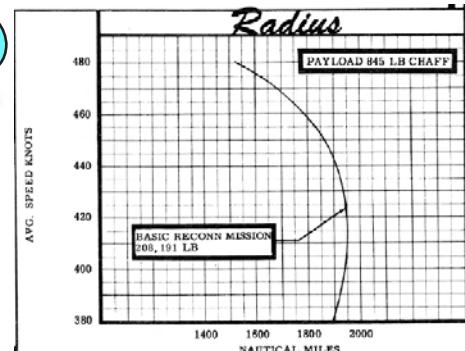
The RB-47

The RB-47 was a B-47 bomber that had been converted into a flying electronic intelligence gathering machine. A capsule had been inserted into the bomb bay of the craft, which contained the three operators (EM#1, #2, and #3), who monitored their instruments for electro-

magnetic signals being radiated. The plane had antennae in various places and highly sensitive receiving equipment in order to detect these signals from great distances.

These planes were used to fly near and over the Soviet Union in an effort to gather information on the types of radar being used to defend the Soviet Union. Several were intercepted by Soviet aircraft and at least two were shot down. Despite the odds, one reportedly was able to fly 450 miles into Soviet air space.

The air speed of the RB-47 has been somewhat exaggerated by both Sparks and Klass. This seems to have been inspired by the pilot's (Lewis Chase) recollections of speeds he felt the craft was flying at many years after the event. However, if one looks at the actual flight characteristic charts of the RB-47 and the pilot's manual for the B-47, one quickly realizes that some of his speed estimates in the 1960s and 1970s appear to be slightly exaggerated. It also tends to validate what he wrote in his initial report back in Sep-



Aircraft operational radius chart³

tember 1957.

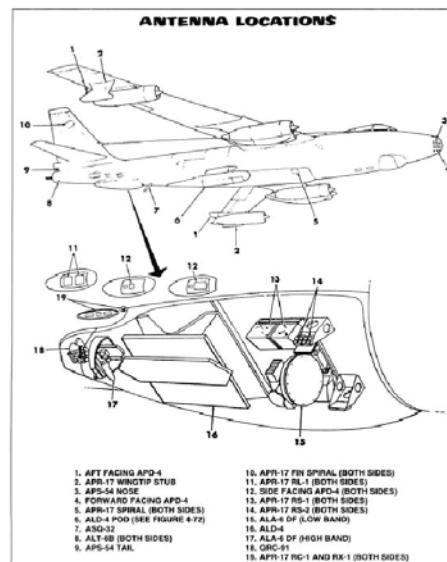
In Brad Sparks' paper, he computes the speed of Mach 1 at 34,500 feet (using radiosonde data from July 17, 1957) as being 687mph (597kts). He did not show his calculations but after examining the radiosonde data for three locations (Jackson, MS, Fort Worth, Tx and Shreveport, LA), I computed similar results (ambient temperature at -39C to -40C at 10,500 meters = 685-686 mph/595-6 knots using an on-line calculator). Therefore, I used 686mph for computing airspeeds of the aircraft, which will be necessary later.

Examining the speeds for maximum fuel efficiency (upper right), we discover the optimal speed is about 380-440 knots. This is confirmed by flight operating instructions manual for the B-47A, which states:

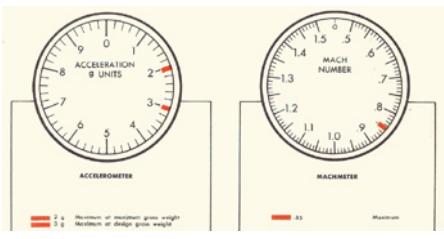
Maximum range is obtained by climbing to performance altitude as rapidly as possible and then maintaining 0.74 Mach throughout the cruise portion of the flight, slowly increasing altitude, about 1500 feet per hour, as fuel is consumed. Although 0.74 Mach is optimum, the airplane can be flown at 0.70 to 0.76 Mach with a maximum loss of range of only 3%. Cruising at Mach numbers above or below these values will result in appreciable loss of range.⁴

Chase wrote in his report that at 1010Z, the plane was flying at Mach 0.74, which computes to 441 knots at 34,500 feet. This was what the craft was flying at for most of the flight and is consistent with the chart and manual.

This brings us to when Chase pursued the UFO with his craft at maximum speed. This speed was listed as Mach 0.83 in his report. He told Phil Klass that



The RB-47 antenna locations.²



Maximum speed and accelerometer values shown for the B-47A⁵

he pushed the aircraft to Mach 0.87 at one point. Brad Sparks increased the top speed to values of around Mach 0.89. I suspect Sparks arrived at this Mach value by using the maximum listed speed of around 610 mph (this value varies between different versions of the B-47) to arrive at Mach 0.89 for 34,500 feet. While this maximum speed is correct it is for an altitude of about 15,600 feet, where the speed of sound is much higher. Examining the B-47A manual, we discover the following statement about the plane's maximum speed:

The aerodynamic characteristics restrict the maximum allowable indicated Mach number to 0.85.⁶

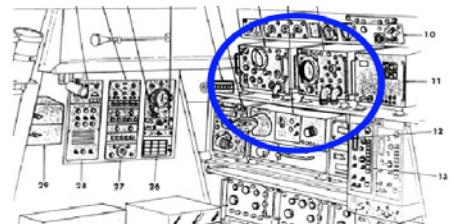
It goes on to note that this "high speed buffeting" will depend on altitude and gross weight of the aircraft and that this speed can be considered an adequate safe speed. Flying outside the envelope would be considered hazardous and could result in a high-speed stall. This is probably why, Chase noted in his report the plane only flew at Mach 0.83 during the pursuit. It is possible that he might

have pushed it beyond that speed but Mach 0.85 should be considered the limit in any flight path consideration.

The RB-47 standard aircraft characteristics manual shows the flight envelope for the aircraft (see below). It confirms the statement found in the B-47A's manual. The maximum speed for the RB-47H at 34,500 feet is shown to be Mach 0.85. I suspect it might be possible to fly faster but would a pilot really be interested in jeopardizing the aircraft and his crew in a chase for a UFO? It just does not stand to reason for him to do this.

Based on this information, it seems that any speed computations have to be based on these limitations. Any values above this previously used by Klass and Sparks have to be considered invalid.

The equipment on the RB-47



Frank McClure's station in the ECM pod. Many of the units at the bottom are power supplies and amplifiers. The circled area indicates the units of concern, which were the AN/ALA-6 (azimuth indicator) and AN/ALA-5 (pulse analyzer).⁸

The RB-47 was fitted with several pieces of electromagnetic sensors. While they had various designators, the AN/

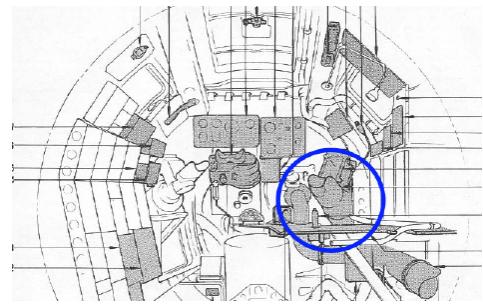


Diagram of the "observers" station on the B-47. Circled in blue is the radar viewing scope.⁹

ALA-6 and AN/ALA-5 are the items of interest being used by Frank McClure when he was analyzing the radar signals. They were able to display the direction the signal was coming from as well as the various characteristics of the signal received.

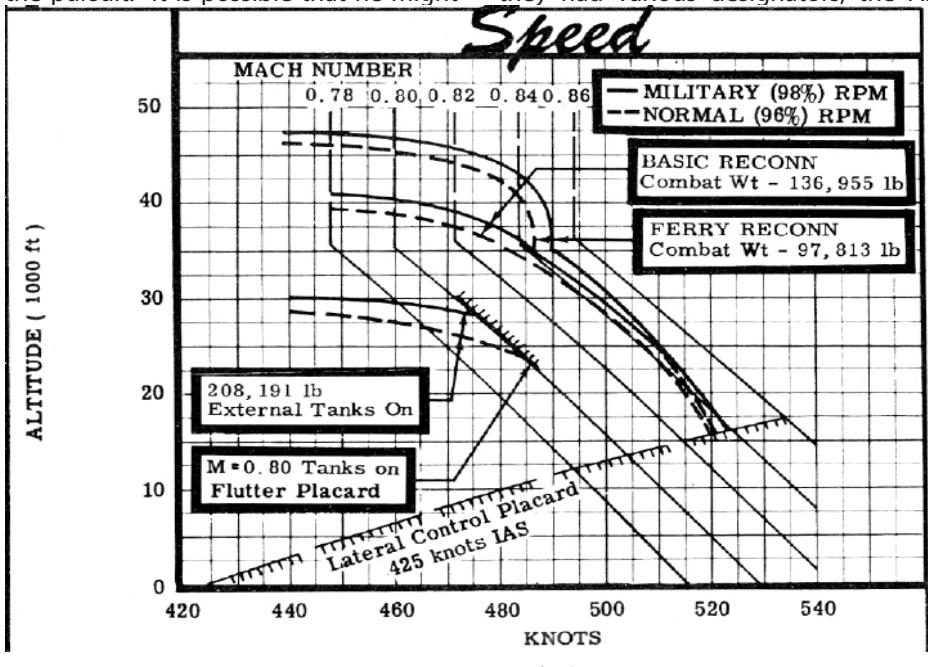
Another item of interest was the navigation radar (AN/APS-23, which was part of the AN/APQ-31 system). It was actually a Bombing/Navigation radar designed for looking down and not really designed for tracking airborne objects. However, according to Dr. McDonald's notes from his interview with the Navigator Hanley, it was possible to track some aircraft at a limited range:

He said it was a pulsed radar, a regular search radar, similar to the APS-54...if you were hunting for a tanker that was below you or in front of you, by eliminating the time-delay, you would have the large band corresponding to six-miles of range in which there would be no competition between the ground return and the skin paint from the aircraft. That would facilitate seeing the aircraft. Under that condition, the B-47 navigational radar could ordinarily spot aircraft the size of a KC-97 out to a range of perhaps 4 miles...¹⁰

One can then conclude that the Navigator might be able to pick up an airborne target if it were large and close to the aircraft.



Keesler's CPS-6B prior to its move to the annex west of the base.¹¹



Radar	Frequency range	PW	PRF	Revolution rate	Locations
CPS-6B/FPS-10 EW	2860-2900 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
CPS-6B/FPS-10 Slant upper	2820-2860 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
CPS-6B/FPS-10 Slant lower	2700-2740 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
CPS-6B/FPS-10 Vertical upper	2740-2780 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
CPS-6B/FPS-10 Vertical lower	2965-2992 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
CPS-6B/FPS-10 Vertical center	2992-3019 MHZ	1.0-2.0 μ sec	600 PPS (1.0 usec) 300 PPS (2.0 usec)	2-15 RPM	Keesler annex, Duncanville, Ellington AFS, OK City AFS, Bartlesville AFS
WSR-1	10.5CM (2857 MHZ)	1.0-2.0 μ sec	650 PPS (1.0 usec) 325 PPS (2.0 usec)	12-24 RPM	Texas A&M college, Carswell AFS, Wichita falls, Shreveport, OK city, Tulsa, OK.
AN/APS-20	2880 MHZ	2.0 μ sec	300 PPS	6-10 RPM	Aircraft: TBM-3W, WV-2, PB-1W, ZPG-2W(EZ-1), AF-2W, HR2S-1W, P-2V, WB-29, RC-121C, AD-5W
AN/FPS-3	1220-1365 MHZ	3.0-6.0 μ sec	200 or 400 PPS	3.3, 5, 6.6, 10 RPM	Lackland, Texarkana
AN/MPS-11	1280-1350 MHZ	2.0 μ sec	360 PPS	0-10 RPM	Sweetwater
AN/TPS-10D	9230-9404 MHZ	0.5-2.0 μ sec	530 PPS	0-6 RPM	England AFB, Sweetwater, Houma AFS
FPS-18	2700-2900 MHZ	1.0 μ sec	1200 PPS	5.33 RPM	Sidney Gapfiller OPERATIONAL 1960
AN/FPS-4	9230-9404 MHZ	0.5-2.0 μ sec	530 PPS	0-6 RPM	Lackland AFB
AN/MPS-14	2700-2900 MHZ	2.0-3.0 μ sec	300-100 PPS	20-30 CPM vertical	England AFB, Houma AFS
AN/TPS-1D	1220-1350 MHZ	2.0 μ sec	360-400 PPS	0-15 RPM	England AFB, Houma AFS
AN/MPS-7	1220-1350 MHZ	3.0-6.0 μ sec	200-400 PPS	5 RPM	England AFB
SP-1M	2800 MHZ	1 & 5 μ sec	600-120 PPS		Mobile
ASR-2	2700-2900 MHZ	0.83 μ sec	1200 PPS	25 RPM	Fort Worth, Dallas, Shreveport, Meridian, Abilene*
ASR-3	2700-2900 MHZ	1.0 μ sec	1200 PPS	25 RPM	Fort Worth, Dallas, Shreveport, Meridian, Abilene*

*These locations were obtained by Phil Klass in his phone conversations with Mr. Waldon of the FAA. These were some of the locations that he listed for 1957.

Ground Radars

No examination of the case is complete without grasping the electronic environment the plane flew into. It is not like there were only a few air defense radars present. There were actually many throughout the flight. Each radar had its own unique characteristics and some of these radar stations had more than one radar. There is a table on this page showing all the characteristics of the various radars and locations for these radars.¹² On the next page, the locations for these radar sites are shown on a Google Earth image. The green sites are the non-air defense radar sites, while the red ones are USAF radar sites. The dark blue site at Sidney was not active in 1957.

The most important radar on the list is the AN/CPS-6B and FPS-10 radar. They are essentially the same radar set with the same characteristics. The only difference had to do with the number and types of indicators available (as well as the telephone system not being supplied with the FPS-10). The AN/CPS-6B was essentially 6 radar sets in one. It transmitted six different beams (see the table above). Each beam transmitted at different angles and used different frequencies. The radar determined the altitude of the object by calculating the difference in time between

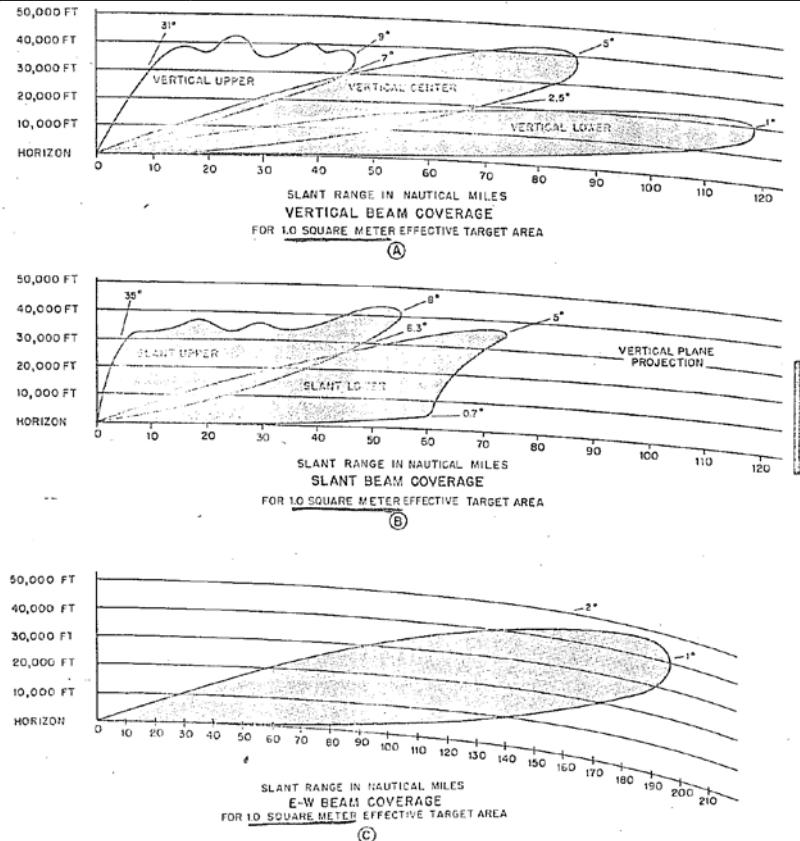
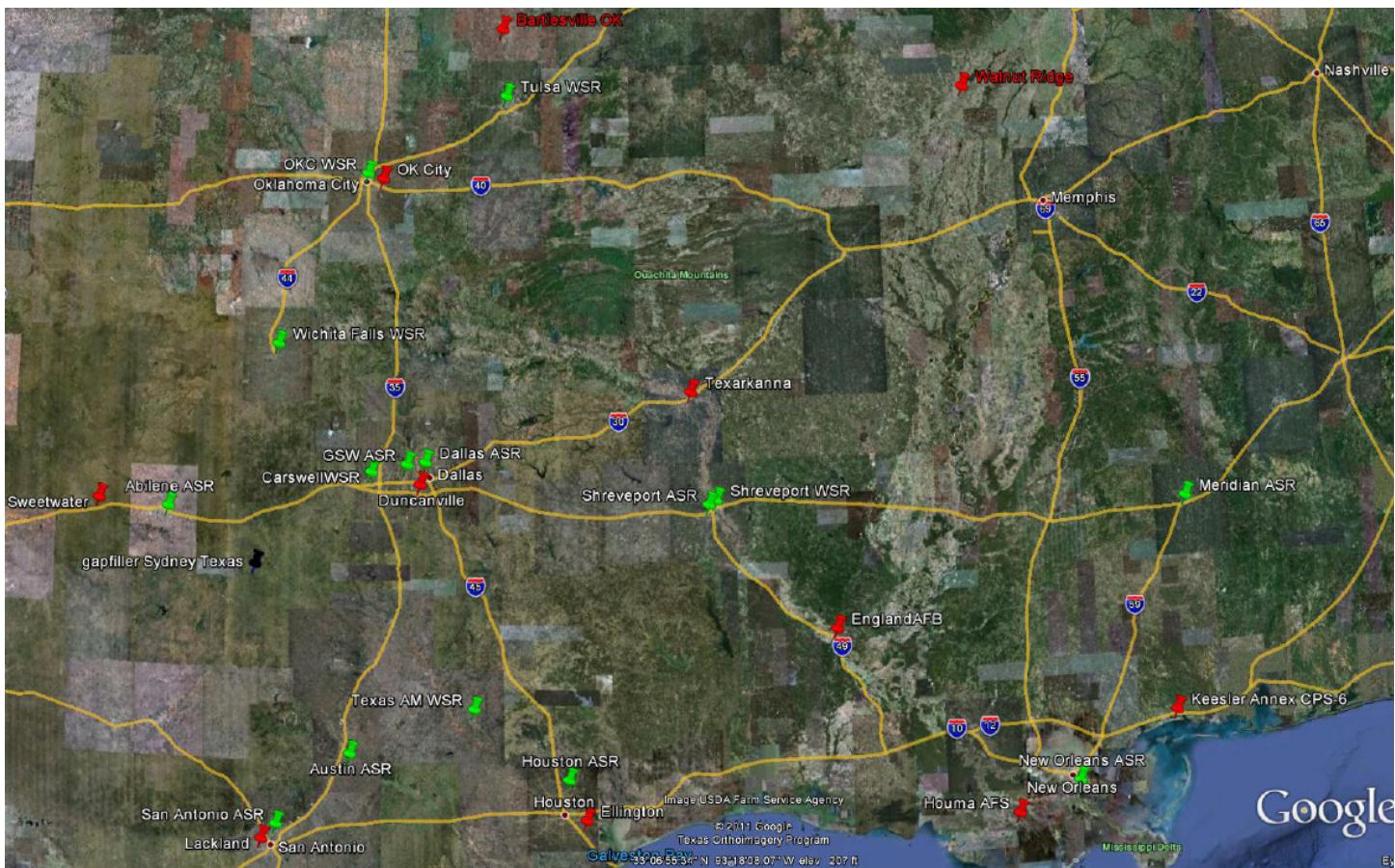


Figure 1-79. Vertical, Slant, and E-W Beam Coverage of Radar Set AN/CPS-6B



the return on a target of the slant signals and the vertical signals. There was also a separate early warning beam that was radiated at a low angle to detect targets that were far away. The basic beam coverage is shown on the previous page.¹³ It is important to note that this coverage only shows the ability of the beams to detect a target with an effective size of one square meter. It does not show all the side lobes of each beam and the limit to which the beams actually extended into space.

Another ground radar that operated in the same frequency band (S-band) was a modified AN/APS-2F airborne radar. It was obtained by the National Weather Service (NWS) and used as a weather radar. It had the designation of WSR-1.

According to Phil Klass' research, there were several airports in the region that employed Air Surveillance Radars (ASR) that operated in the S-band. These were designated ASR-2 and 3.

There were other ground radars in and are listed in the table on page 9. I am not even sure this table is complete since the military and civilian ASRs might have existed at some airports not listed. The WSR radars seems to be complete but I

may have missed some locations. It appears one might be able to classify the area of Eastern Texas and Oklahoma as an "S-band minefield"!

Airborne Radar

The most common airborne radar that operated in the same frequency range of interest was the AN/APS-20. The "B" version is listed in the table. It was found on several aircraft. Some of these were quite common in 1957.

Another less common airborne S-band radar was the AN/APS-82. It was essentially experimental in 1957 and was fitted on top of the E-1B tracer aircraft (the predecessor of the E-2 Hawkeye aircraft). It operated at a frequency between 2850-2910 MHZ. The first flight of the prototype was not until December 1956. The same radar was mounted on a WV-2E in August 1956, which was designated EC-121L.

Mobile S-band radar

The Marines had a radar called the SP-1M which was a mobile version of the SCR-615B. It was used sparingly and there is no evidence that it was anywhere

near Texas. I only listed it for the purpose of comparison.

The Mission

One aspect of the case has never been really resolved because the crew members seem to disagree on what the purpose of the flight was. McClure would tell Klass that they were just shaking down the aircraft after periodic maintenance and it was destined to be deployed overseas for use by another crew. The copilot, McCoid, agreed with this. The other ECM operators, Provenzano and Tuchsherer told Dr. McDonald that they felt there was a recording of the events no matter what kind of mission it was. Major Chase told Phil Klass it was not a shakedown but was a training flight instead. A training flight would have been recorded in many ways (wire recordings/photographs of displays, etc.), while a shakedown flight might not have been. Chase stated that the intelligence report (written by the intelligence officer Piwetz) proves this. However, the report only mentions that ECM #3 began a recording at time 1048Z, which means they probably were not recording anything prior to this. There is no indication that any photographs of any of the displays were ever made and

McClure denies having such a capability that morning. One would think that he would remember operating this equipment to record the displays.

Sparks rejected the idea that this was a shakedown flight and has determined this had to have been a training mission. This means that everything must have been recorded. I am of the opinion that McClure was probably right because the original date of September 1957 was selected based on McCoid and Chase looking at their old flight logs to determine what date they had conducted a training flight that matched their memories. If the July 17th flight was listed as a shakedown flight, Chase might have overlooked it as the one he remembered.

One can not say for sure but it seems to be part of the conspiracy theory that this critical data was taken away and never shown to project Blue Book. One can hurl all the accusations one desires but it does not change the simple fact that there is no tape recording to examine. I will let the reader decide if it is conspiracy, foul up, or there was very little information recorded on the flight.

Radiosonde data¹⁴

An important item to understand in all of this is the conditions in the atmosphere at the time of the event. We don't have actual data from the exact time the plane was transiting the area but we have a fair approximation. I was able to obtain radiosonde data from NCDC for Fort Worth, Shreveport, OK City and Jackson at 1200 Zulu time, which was shortly after the plane passed through the area (1000-1100Z). I have the original readouts and there may be some transcription errors. If anyone desires the data, I can send it to them in the form I acquired it. I only included up to the data point above 34,500 feet/10,515 meters:

Fort Worth (X indicates no data)

Press (mb)	height (m)	temp (c)	dewpt (c)	Wind dir	Spd (kts)
994	180	25.1	19.0	0	0
950	590	27.5	18.8	210	19
900	1058	23.9	15.1	194	17
850	1555	20.0	11.2	169	10
800	2074	16.9	1.4	146	8
784	2260	15.9	-3.6	X	X

750	2620	13.6	3.1	158	10
700	3199	9.0	3.0	156	12
693	3300	8.1	2.6	X	X
650	3800	4.7	-3.3	160	10
600	4457	1.4	-14.2	163	12
550	5160	-1.6	X	146	12
502	5890	-5.6	X	X	X
500	5907	-5.9	X	165	12
450	6720	-10.1	X	225	10
400	7623	-16.6	-27.3	186	6
350	8612	-24.0	X	162	6
300	9718	-33.2	X	180	8
250	10970	-43.9	X	134	6

Jackson, MS

Press (mb)	height (m)	temp (c)	dewpt (c)	Wind dir	Spd (kts)
1005	94	23.1	21.9	0	0
1000	145	23.4	21.1	0	0
978	320	25.0	17.5	X	X
950	590	23.7	16.2	287	2
900	1068	21.3	14.0	300	2
850	1561	17.5	13.6	302	4
800	2077	14.4	11.0	347	2
750	2620	11.3	7.8	292	4
700	3197	7.9	4.3	299	8
650	3800	4.2	4	300	4
600	4454	3	-3.8	340	4
550	5140	-3.8	-7.9	4	8
500	5895	-7.6	-13.4	36	8
475	6290	-9.4	-16.3	X	X
464	6470	-9.4	-21.7	X	X
450	6700	-11.0	-24.1	38	10
400	7607	-16.2	X	34	17
350	8597	-23.9	X	40	12
300	9703	-32.5	-44.1	8	10
281	10160	-36.0	-47.0	X	X
250	10963	-42.2	X	356	10

Shreveport, LA

Press (mb)	height (m)	temp (c)	dewpt (c)	Wind dir	Spd (kts)
1007	76	23.5	22.3	170	4
1000	138	24.4	22.5	177	6
977	350	27.1	21.4	X	X
950	600	25.5	19.4	248	10
900	1068	22.3	15.6	170	4
850	1563	19.1	11.7	135	6
800	2083	15.9	7.9	124	8
750	2630	12.5	4.2	110	8
700	3207	8.5	1.6	120	6
650	3810	4.1	-0.7	110	2
622	4170	1.5	-2.1	X	X
600	4462	0.1	-3.6	32	4
550	5150	-3.0	-7.3	18	4
500	5907	-6.7	-11.2	65	2
450	6720	-11.6	-20.4	280	2

400	7617	-17.5	-32.7	44	4
350	8605	-24.2	-37.4	72	12
300	9712	-32.0	X	53	12
250	10872	-43.0	X	50	2

OK City (Will Rogers airport)*

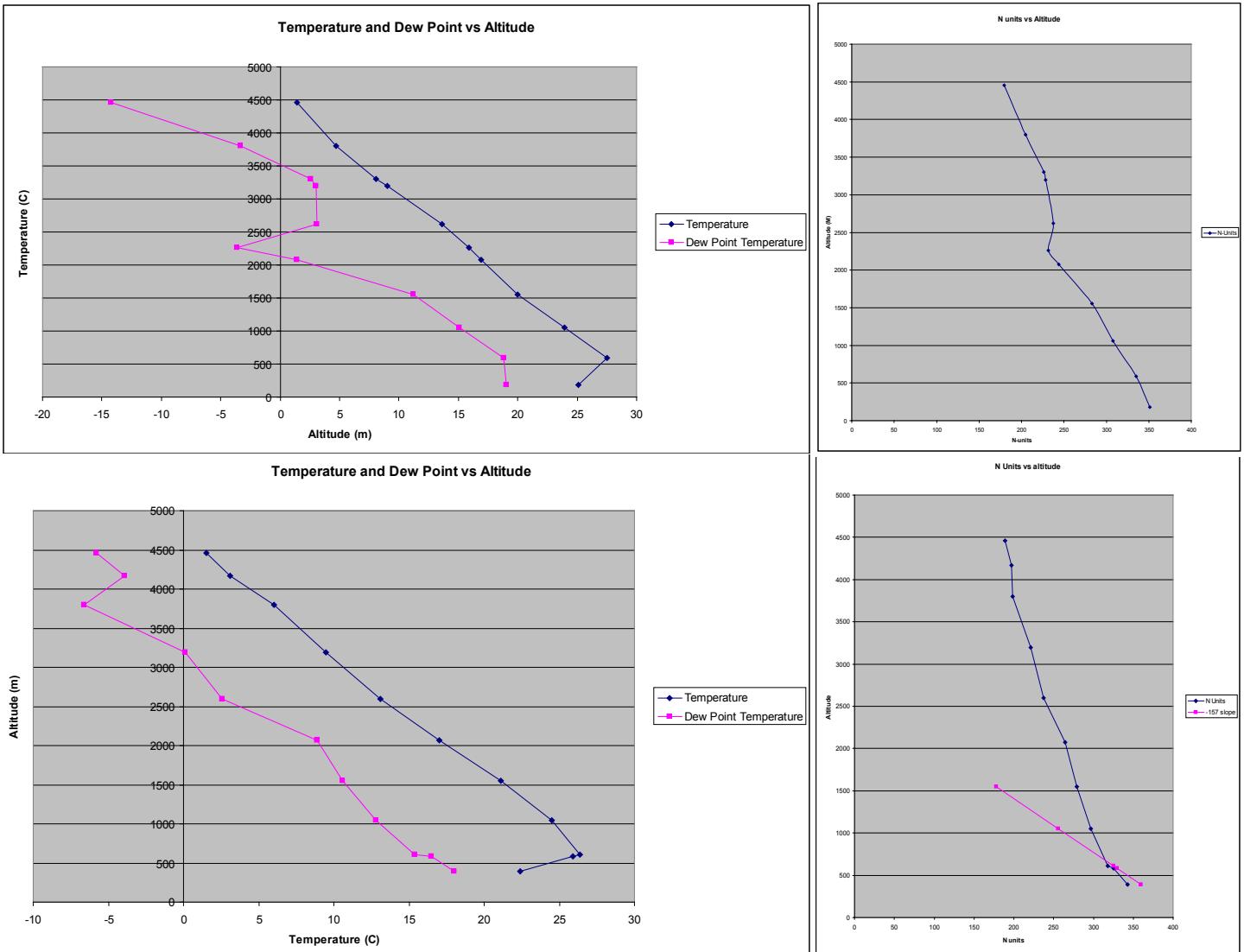
Press (mb)	height (m)	temp (c)	dewpt (c)	Wind dir	Spd (kts)
970	392	22.4	18.0	180	10
950	580	25.9	16.5	202	27
945	610	26.4	15.4	X	X
900	1050	24.5	12.8	210	31
850	1549	21.1	10.6	202	21
800	2071	17.0	8.9	194	12
750	2600	13.1	2.6	200	8
700	3194	9.5	0.1	177	8
650	3800	6.0	-6.6	134	13
622	4170	3.1	-3.9	X	X
600	4457	1.5	-5.8	150	17
550	5140	-2.4	-11.1	150	13
500	5903	-6.9	-15.5	144	17
450	6710	-12.0	-17.6	128	17
400	7612	-17.3	-26.3	124	21
350	8599	-24.4	X	143	19
300	9703	-32.8	X	139	19
250	10962	-42.4	X	119	21

*OKC - Will Rogers Airport had radiosonde data for 1200Z. Tinker AFB only had data for 0600Z. Will Rogers did not have data for 0600Z for comparison.

So what do these readings mean? I am not an expert on analyzing these values but I did do some reading on the subject of how they can affect radio waves and how one can calculate the atmosphere's ability to refract those waves.

The atmosphere normally does refract radio waves allowing their direct wave components to be received at locations farther than the optical horizon. The measure of this refraction is called the "lapse rate" and is measured in "N-units/km". The normal lapse rate is -40 units/km. I made an attempt to calculate those values based on the radiosonde data using the formulas provided by Dr. Willis' web site. On page 12, there are graphs showing Temperature and Dew Point vs. Altitude as well as N-Units vs Altitude for two of these sites. There are two points of interest in these computations:

- The Fort Worth data shows a significant decrease in the dew point around the 7000 foot level. The lapse rate in this region I computed was about -75 units/km, which is higher than the normal lapse rate for the in-



The two graphs display temperature and dew point vs altitude on the left and N-units vs altitude on the right. The bottom graphs are for OK City and the top graphs are for Fort Worth. On the OKC N-Units graph I plotted a pink line showing the critical slope of -157 N-units to demonstrate how the temperature inversion at low altitudes indicated super refractive and possibly ducting conditions. The Fort Worth conditions are not as severe but display a higher than normal index of refraction at the 7000 foot level.

dex of refraction.

- The OK city data had a temperature inversion of significance up to the 2000 foot (610 meters) level, which had a lapse rate of about -242 units/km. This is also significantly higher than normal but this value is for a narrow band of the atmosphere. The Tinker AFB data for 0600Z (0000 CST) indicated a lapse rate of -53.2 to -58.8 at these levels. It appears that these condition was forming around midnight local time. Is it possible that a condition called a tropospheric duct had formed?

Now these values may mean nothing (I may have calculated incorrectly) but the fact there were some suspect atmospheric conditions in the OK city and Fort Worth area is something that should not be ignored. They could have played a

role in the events that transpired.

Notes and references

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12. This table was constructed using data from several sources with <http://www.radomes.org/museum/>, American Philosophical Society, Philip Klass Collection. Box Series II-6, David Winkler's Searching the skies, and Roger Whiton and Paul Smith's History of Operational Use of Weather Radar by U.S. Weather Services as the primary sources.
13. TO no. 16-30CP56-7. Page 69. 16 August 1954. American Philosophical Society, Philip Klass Collection. Box Series II-6.
14. National Climatic Data Center. Radiosonde Data of North America 4-disk CD-ROM.

The RB-47 flew from Forbes Air Force Base in Kansas to the south over the Gulf of Mexico. There they conducted gunnery exercises and navigation training. The next phase of their flight involved flying north towards the gulf coast at Mississippi. As the plane neared the coast, ECM#2 Frank McClure noted a radar signal that confused him.

According to McClure, the radar signal started out from the rear starboard quarter of his scope and moved up to the forward quarter. Thus, the radar signal moved "up-scope". In some interviews, he also stated that the signal then moved down the port side in a "down-scope" maneuver. This implied the signal was airborne and passed the aircraft on the starboard side or moved around the aircraft in a complete circle.

This part of the case was considered highly unusual and unexplainable. However, Phil Klass thought he explained it by stating that what they detected was the Keesler AFB CPS-6B radar and a faulty relay caused the signal to be reversed. Instead of going down-scope on the port side as it should have appeared, it went up-scope on the starboard side.

Rebuttal

In his lengthy analysis of the case, Brad Sparks makes three significant arguments against the Klass theory that what was detected was the Keesler AFB CPS-6B

RB47 Phase I: The Up-scope incident

radar and there was a malfunction of the ALA-6 relay causing an error in the signal display:

1. The aircraft crossed the coast west of Keesler at Gulfport. Therefore, it would have been impossible for there to be an upscope event even with a faulty relay.
2. In addition to going "up scope" McClure also stated it then went in front of the aircraft and then "down scope" on the port side indicating the object was circling the aircraft.
3. The Keesler radar was not in operation at the time because it was closed down for the summer break.

This seemed to make Klass' explanation invalid but how good are these arguments and do they positively prove that it could not be a faulty relay and the Keesler AFB CPS-6B?

Biloxi or Gulfport? That is the question

The first argument put forth against the Klass theory of the upscope incident has to do where the RB-47 crossed the coast. Early on, Dr. McDonald had interviewed the witnesses and received

the statements that they crossed the coast NEAR Gulfport, Mississippi. However, Lewis Chase, the pilot, had told Dr. Roy Craig they crossed the coast NEAR Biloxi. Considering they were recalling details from an event that had occurred a decade earlier, it seems likely there were going to be errors.

Brad Sparks has interpreted this to mean that the plane was flying due north at 89 degree west longitude (Gulfport is at approximately 89.08 deg longitude and Biloxi is at 88.9 deg). This argument appears to be based on the assumption that the Navigator was to navigate by the stars along a specific line of longitude. While this is an interesting theory, why use the 89th meridian? Why not 89.5 or 88.5? What is so magical about 89 degrees? In fact, how would they know the Navigator was right if he states he was on 89 degrees unless they had a landmark to reach? It seems like the nice round number is the only reason that Sparks chose this path.

Unfortunately, the 89 degree longitude path does not agree with what Lewis Chase put in his UFO report in 1957. He does not describe where they met the coast but he did draw the flight path. It appears to go due north and end at Meridian, Mississippi. The intelligence report appears to confirm this by stating that the plane flew towards Meridian. They were probably trying to navigate towards Key Field on the west side of Meridian as a way point. This would be a recognizable landmark to verify that the Navigator had done his job correctly. Its longitude was $88^{\circ}45' 7''W$. Had they crossed the coast at 89 degrees west longitude, the due north course would have put them about 14 miles west of Key Field, where there are no known landmarks to verify the navigator's work (unless you can consider the small crossroads of Hickory at 89.02 an easily recognizable landmark from 34,500 feet).

It will never be possible to determine where exactly they crossed the coast without the navigator's log but to state they positively crossed at Gulfport and could not have crossed anyplace else, is just wishful speculation. The possibility the plane crossed east of Biloxi on a course due north to Meridian is not an unreasonable to consider and remains a



A flight simulator X view of a B-47 flying just east of Biloxi, Ms. This is the location the RB-47 would have crossed the coast if it were flying directly north to Key Field at Meridian, Ms.

distinct possibility.

Up-scope/down-scope: Two versions of the same story

Shortly after the crew returned to Kansas, they were debriefed by the wing intelligence officer, Piwetz. He wrote a four page report on what transpired. He described this part of the incident in a single paragraph:

At approximately Meridian, Mississippi, a signal with the following characteristics: Frequency 2995 to 3000 MC; Pulse-width of 2.0 microseconds; Pulse repetition frequency of 600 cps; sweep rate of 4RPM; Vertical polarity. Signal moved rapidly up the D/F scope indicating a rapidly moving signal source; I.E. An airborne source. Signal was abandoned after observation.¹

At this point, there was no mention of a "down-scope" component to the signal. One would think that such a detail would be mentioned.

During the Condon Study, Dr. Roy Craig interviewed several of the crew members. Frank McClure described this part of the incident as nothing more than an "up-scope" event:

I originally picked the signal up behind me. It went up the right side of the aircraft and then it just hovered out there, out in front of us. Then we lost it, and then it turned up on the other side of the aircraft and moved clear around us, as I remember. But we would lose it from time to time.²

McClure, at this point, appears to be describing the behavior of the radar signal over the entire flight. After the upscope incident, according to the intelligence report, the signal did appear on the starboard side of the airplane and, after flying between Fort Worth and Dallas, it moved around to the port side of the aircraft. So, McClure's description at this point can be interpreted as a recap of the entire incident.

Dr. James McDonald interviewed McClure in February 1969 over the phone. McDonald was the first to get McClure to state the signal also had a "down-scope" component:

...I learned, to my surprise, that McClure

first picked up the signal when it was BEHIND HIM going forward! This was when he was northbound near the coast at Gulfport. He stated to me that he called forward to see if anything was seen up there, but they saw nothing, and he forgot it at the time.

Equally surprising was his description that the XXXX (lined out with something inked above – "blip") on his scope indicated that the source orbited the B-47 in a counter-clockwise manner. When he first picked it up in the Gulfport area, it was a little bit to their right and it moved UPSCOPE on the right side, went around the front, and then came down on the left side. In reply to my query, he indicated it slipped around at about a constant angular velocity...³

In his communications with Klass, this description is not as clear as Dr. McDonald described, Klass had him describe the signal's behavior several times and what he received from McClure was a mix of answers. For instance, in his initial letter to Klass he stated:

I knew that it was not a signal operating from the ground sight (sic), because it moved from 180 degrees to approximately 60 degrees. I asked the pilot if he were in a turn and he replied negative. I made other checks on related signals - looking for other beams etc....So I considered it as a fluke signal and dropped it.⁴

At this point, there is no mention of a "down-scope" incident. Because of the letter, Klass was able to conduct a long phone interview with McClure. The descriptions in Klass' notes are contradictory. Initially, McClure stated:

This was what we were doing was checking every piece of operating equipment on there. And that's why I wasn't particularly alarmed when I saw the signal go up-scope. I just made a mental note of it that something's wrong with the ALA-6.⁵

This is consistent with a simple up-scope description. However, McClure then stated:

I noticed that, I can recall that it wasn't abeam of us exactly, but it was around 30 deg, just ahead of us, and it stayed at the same relative bearing for a long time, and

I know we were flying straight and level. And it did come in front of the aircraft and down the other side. At this time I don't think we were all mixed up with Utah, Shorthorn, and all those other radars.⁶

This is the first moment he mentions to Klass a signal went down the other side of the aircraft.

Klass kept pushing McClure to describe the "up scope" signal in more detail and McClure obliged him:

I only worked it 2, 3, 4 minutes, we'd moved quite a way in that time, but it was not too long after that we turned, but that's just my recollection....It overtook, well I'd say it went from 180 deg to abeam of us in 50 seconds, you could see it move, I couldn't see it, becuz it was coming up so fast just like we were standing still, and that's why I asked the pilot, becuz if he had been in a turn to the left or to the right, I mean that would make it look just like that....⁷

This continued to be a description of just an up-scope signal. Late in the interview, McClure gave a time line of events that disagreed with the earlier part of the interview:

I first picked it up behind me, and it came up by me, and it came up fast, then it got out to around 30 deg. And just hung there, and then it came around the front of the airplane....So I played around with it for 4 or 5 minutes from the time I first intercepted, until I left it until about 20 minutes or so later and we were heading west.⁸

Like, the interview with Dr. Craig, the length of time he described seems to be a combination of the initial incident and the subsequent Duncanville signal. He had stated that he worked the initial signal for just a few minutes but he now describes something that is about 20 minutes in duration.

In a later letter to Klass, McClure continued to describe this incident just as an "up-scope" signal with no "down-scope" component:

I was working the S band when we left the gunnery range and was confronted with a signal moving up scope. I checked it out as to being a spurious response or image

and looked for other beams without success. I called the pilots and asked if it was possible we were turning. The front end said negative so I dropped the signal and leisurely changed to L band to work then when I was alerted, I returned in haste to my original freq-whatever it was.....⁹

This description is similar to the one he gave in an even later letter to Klass

I doubt that it was any thing but a happenstance that the signal went up scope at the onset. I know that no other signal acted that way and when I first came back to the signal it was still moving strangely as it hung about 70 degrees for a while. After that I am sure we were turning so much that it would have made it move funny.¹⁰

Once again, McClure seems to be convinced that it was only an "up-scope" signal near the Gulf coast.

What this indicates to me is that we have some memory issues here. He is confusing all the events as one, which is where we probably get this "down scope" business after the up-scope readings. It seems possible his description of the "down scope" relates to the Duncanville event, when the signal did move to the port side of the craft (around the turn northwest of Fort Worth). The 30 degree bearing he keeps describing is pretty consistent with the signal described in the Piwetz report, which was described as being at 40 degrees.

When asked by Klass, Chase stated they saw no UFO at anytime in this part of the flight. It seems the only source that describes the "down scope" portion of the incident is not very consistent and may be mistaken. As a result, one can not "cherry pick" certain comments to falsify what Klass proposed as the explanation for this part of the case.

Summer vacation and burning the midnight oil

The Keesler radar not in operation is the main argument by Sparks. In his rebuttal he makes the following comment:

The most serious problem with Klass's explanation is that the Biloxi radar was

used only for training purposes and evidently was not operating in the middle of the night in the middle of the summer of 1957....According to ATC, in 1957 only one course operated the CPS-6B – the training course AB300332D, AC&W (Aircraft control and warning) Radar repairman, consisting of 18 weeks of classroom teaching and 18 weeks of training on the various types of equipment (not just the CPS-6B but also the FPS-6 radar and two GPX-6 IFF radar sets so the CPS-6B portion of the equipment training covered less than 9 of the 18 weeks; letter of ATC to Sparks, June 6, 1977.) Since it was a nine-month course it was apparently run during the normal academic term from September to June approximately. In other words, there would not have been a class in session to operate the CPS-6B even in the daytime, let alone nighttime, in the midst of summer vacation, on July 17, when the RB-47 incident took place.¹¹

Sparks' argument is stated as if it were factual and accepted by all as being correct. However, he makes a lot of assumptions that are just plain incorrect. First of all there is no such thing as an "academic term from September to June" or "summer vacation" when it comes to military training. It is year-round (with the exception of breaks occurring around the Christmas holidays). Military courses in enlisted training are done in assembly line fashion such that when one class completes a phase of instruction, another takes its place. There could be as many as 12 or more classes graduating each year in order to keep up with the AF demand for radar technicians because every month, techs are promoted to supervisor positions, exit the service, or are assigned elsewhere for other reasons.

Going through the graduating class photographs available at the Keesler AF graduates forum and communicating directly to two of its members, I was able to find several graduation dates for the training course 300332 in 1957.

- Class 31056 graduated January 8, 1957
- Class 05076 graduated February 12, 1957
- Class 19126 graduated July 30, 1957



The AN/CPS-6B at the Keesler annex in 1955. Photo courtesy of the Murphy dome web site¹²

- Class 30017 graduated September 10, 1957
- Class 27027 graduated October 8, 1957

(The class numbers appear to be the date the class started. EX: Class 05076 started on 5 July 1956)

The two individuals I directly talked to, who were present at Keesler in 1957, told me that they graduated on March 14, 1957 and June 25, 1957. While this sample is not complete, it appears that there was at least one (possibly two) graduating class every month of the year. There seems to be plenty of evidence that classes involving the CPS-6B were in session in July of 1957.

Additionally, the school had to operate in shifts. Their basic electronics course had at least three shifts of training (06-12, 12-18, 18-24), so they could cover the course of instruction for all the students there. Communication with various alumni of the Keesler radar training indicated that there were three 6-hour shifts at the annex, where the CPS-6B was operating, as well. As one alum pointed out, they were long on students and short on equipment at the annex. Maximizing the use of the equipment was a priority.

Klass only became aware of the CPS-6B at Keesler because Frank McClure told him about it in his initial letter to Klass and that he expected the radar to be operating that morning. When Klass asked him about the school in a phone call and if the CPS-6B operated at night, McClure stated:

Yes sir, up to midnight when I was there,

*I was an instructor there for two years...I was a supervisor instructor there for three years...and they worked from early in the morning until after midnight.*¹³

This brings us to the CPS-6B operating between 0000-0600. I posed the question about it to several individuals and this eventually was forwarded to two Yahoo discussion groups (AF Radar veterans and AF Keesler graduates). Concerned that I would be ignored by bringing up the subject of UFOs, I did not describe this as a UFO event. My request stated:

*I am researching an incident where an RB-47 aircraft flew near Keesler and reported a radar signature that was very similar to the AN/CPS-6. However, this was at 4AM on July 17th of 1957. Since the AN/CPS-6 was used only for training, I was wondering if it could have been in operation early in the morning. I also would like to know what groups were using the radar besides the radar maintenance techs.*¹⁴

The basic consensus was that there were three 6-hour shifts of training (one of which may have involved officers) and that the mid-shift was used for maintenance on the radar system and getting it ready for the morning shift at 0600. The existence of a 51-week officer course is described (although it is seven years after this event changing the radars being trained upon) by a commentary at radomes.org. One former student thought it was possible that there may even have been some live student operator training (the radar operator students were referred to as "scope dopes") after hours. Since the 17th of July was a Wednesday, there would have been classes that morning and it COULD have been operating between 3 and 4AM (CST) so it was ready for the beginning of the 0600 class, as a retest for maintenance performed on the unit, or for training purposes.

We will never know if the CPS-6B was actually operating that morning without the operating logs for the annex on the date in question. However, the argument that it could not be operating because it was summer time or in the middle of the night is not accurate based on what is known about how the annex operated.



What was detected where

A more compelling argument against the Keesler radar was Martin Shough's argument that the CPS-6 could not be detected as the aircraft passed over Biloxi. This was based on the aircraft not spending enough time in the radiation pattern to determine the revolution rate of 4 RPM described in the intelligence report. In Klass interpretation of the ALA-6's sensitivity to the CPS-6B, he states that the upper side lobe of the vertical center beam would only be detected in a narrow 2-mile stretch about 28-30 miles from the radar. Inside that radius, the ALA-6 would not detect the beam. However, these values for the signal actually come from the notes made by McClure the second time he saw the signal near Duncanville and not from any notes he made near the coast:

*I did not write anything down until the #3 Raven said the remark about the front end "chasing flying saucers."*¹⁵

This reference to writing the information down means the signal described in the intelligence report reflects the signal characteristics they saw in Texas. The signal seen during the up-scope incident could have been any of the beam frequencies. In fact, Dr. McDonald stated McClure told him that this frequency was 2800 mhz:

*In discussing it with me, his recollection was that the frequency was near 2800 mcs....*¹⁶

McClure clarified this in a letter to Klass, where he stated:

I do recall the signal was in the neighborhood of GCA and the lower end of the CPS-6B, which runs from 2770 to 3200 MC if I remember right. So if McDonald quoted a

*specific freq of 2800 MC it was a ballpark figure.*¹⁷

This value of 2800 MHZ was repeated in many interviews with the crew. One wonders why the number was remembered so vividly (while 3000 MHZ was a nice round value). If the signal was near 2800 MHZ, then it would have been near the vertical upper beam's frequency range of 2740-2780 mhz (or the slant upper beams frequency range of 2820-2860 mhz), which means the plane could detect the signal when it was as close as 11-12 nautical miles or less from 34,500 feet.

According to McClure's discussion with Klass, the signal moved very fast and he had just enough time to determine the pattern was very much like a CPS-6B. There is no indication that he determined the revolution rate for the antenna at this point. He just noted the frequency was an S-band radar like a CPS-6B and that it moved fast. This kind of angular speed could have been the result of the RB-47 flying very close to the ground radar.

Klass discussed the issue of close proximity detection with Rod Simons, an expert on the APR-9 used to receive the signals that were displayed on the ALA-6. In an October 8, 1971 phone call, Simons stated the RB-47 could detect the side lobes from the vertical center beam at a distance of 20 miles (this distance was suggested by Phil Klass).

...that thing is packing a fair amount of power, so at those distances I think there would be no question about detecting it. That was an APR-9 on the front end and so I'd say there's no question that you would get a good strong signal.

*Even if you had a crystal video receiver when you are in that close you would pick it up...you might even get a signal all the way into the radar.*¹⁸

Assuming the aircraft flew directly towards Meridian's Key field, it would have crossed the coast at about longitude 88°45' 7"W. At its closest point, the RB-47 would fly by the CPS-6 (located at 88°57'36.00"W, 30°24'26.00"N - see 1992 Google Earth image above) at a minimum distance of about 11 nautical miles (12.65 statute miles). Considering all of this information, it seems possible that

TABLE 6-7

TROUBLE ANALYSIS: ANTENNA ASSEMBLIES AS-655/ALA-6 AND AS-656/ALA-6; ANTENNA COUPLER CU-398/ALA-6

Trouble	Probable Cause	Test	Remedy	Reference
1. Low or zero output from antenna	A. Rotating coaxial connector	Inspect for dirt, corrosion, or excessive wear	Clean per paragraph 5-34, or replace worn item	Figures 5-15, 6-7, 7-4, 7-7 & 7-8
2. Noise in output from antenna	A. Rotating coaxial connector B. Slip-rings or slip-ring brushes C. Antenna drive motor hash filter	Same as test 1 Same as test 1 See table 6-6, trouble 7A and 7B	Same as remedy 1 Same as remedy 1 —	Figures 5-15, 6-7, 7-4, 7-7 & 7-8, par. 6-3a & 6-18
3. Antenna polarity switch VERT-HOR. is thrown; pattern on screen rotates 180° in bearing, but does not change in size	A. Antenna polarity-reversing relay (K601 or K701) not operating. (See trouble 10 of table 6-6)	Test for corrosion or breakdown of slip-rings or worn or broken brushes; test for open relay coil; test for bad relay contacts	Clean as per paragraph 5-34, or replace brushes, slip-ring or relay	Figures 5-15, 6-7, 7-4, 7-7 & 7-8, par. 6-3a & 6-18

Can a bad connection go undetected?

During my naval career, I was an electronics technician. For the nuclear power plant, my division was responsible for the electronic equipment monitoring and controlling various reactor parameters. One of the units was to monitor the reactor power and sending that signal to the protection system as well as to various indicators throughout the plant. On my first submarine, we had discovered an anomalous trip signal had mysteriously appeared when the power monitoring equipment was powered up. This did not happen every time and was something new. So, as technicians, we were asked to troubleshoot the problem. We found it very difficult to isolate because every time the problem would appear and we would attempt to isolate it to a specific cabinet, it would disappear. Eventually, we did isolate it to a specific unit and removed that drawer for troubleshooting on the bench. There were three first class petty officers (E-6) involved in the troubleshooting (myself and two others) and one would think it would have been easy. Our effort to isolate the faulty circuit came down to determining which one was responsible for limiting positive surges on power up (which is what the signal indicated). However, we discovered that this circuit responsible for this had no faults

and we were scratching our heads. One of the other technicians had a wooden stick and he was pointing towards various components when he touched a diode and it sprung downward. The diode had been wrapped around its "turret" but had very little solder on it. The electrical solder connection had been essentially broken. Recognizing a potential clue, we looked up what the component did. It limited negative surges and we initially shrugged figuring it did not make sense until we examined subsequent circuitry that would interpret any surge (positive or negative) as a positive signal and produce the trip signal. Our wise Senior chief asked us to remove the component completely and test it out. This produced the fault signal every time. Apparently, as the cabinet was opened and closed, the component would change its contact and produce the errant signal. This fault (weak/poor solder connection) existed since the installation of the unit over a decade before since there was no mention of the component being replaced in the material history card. This fault only materialized under the right conditions. Had it not created the spurious signal, it would probably have been ignored for much longer or not even found.

the equipment could detect one of the CPS-6 radar beams at that distance.

As stated previously, no visual sighting was ever reported even though, the UFO passed in front of or to the front right of the aircraft. The pilot/copilot/navigator saw nothing. It is really hard to suggest this as a "good unknown" when we don't even have a visual verification that something was there. Instead, all we have is an anomalous radar signal, which Frank McClure described as an, "...almost a picture-book display of a CPS-6B type signal."¹⁹

The stuck solenoid theory

Phil Klass proposed an explanation to this "up-scope" signal. After examining the manual for the ALA-6 he identified a faulty solenoid/relay that could have caused a 180-degree error in the signal as the plane flew east of Keesler's radar. See the table above that comes from the troubleshooting section of the technical manual. Trouble item number 3 appears to describe the symptoms of the 180 degree error.²⁰

In order to explain why the rest of the signals later did not do this, he suggested the fault was an intermittent one (such as a loose lead or relay that was initially stuck/frozen in position) that disappeared. This seemed to be a reasonable

theory.

When McClure read this explanation, he disagreed:

I don't agree with the malfunction though, because I flew that equipment for 1000 hours in a period of four years and I never saw any sign of a malfunction of this nature, and I never heard any of the hundreds of experienced ravens we had voice any thing which would lead to this conclusion. I do feel strongly that something malfunctioned, but I have no notion of what it could be.²¹

He repeated this objection, in another letter (apparently after receiving a copy of UFOs: Explained):

I certainly agree the equipment malfunctioned some how, but I can't quite buy the relay you stated was the cause. It seems to me if it malfunctioned that all the signals would be moving wrong, and that since the tail of the aircraft would have reflected the true heading of the aircraft, the ninety degree and 360 degree points would have been changed.²²

McClure's concern about the equipment failure seems to ignore the possibility that the relay failure was intermittent. In fact, this type of fault was mentioned by a technician the next day according to McClure:

The day after the incident, when several of them were talking to a technician at Forbes AFB and the technician suggested that a loose lead on the ALA-6 might have caused the sweep around signal in Mississippi, Provenzano asserted that he had seen the same phenomenon on his APD-4 monitor.²³

It is not clear if the technician found a loose wire and fixed it or suggested a loose wire might be the cause. If he had found the connection loose, he would have simply reattached it correctly and nobody would have ever seen the problem again.

When Klass forwarded his paper on the incident to D.G. Erskine of Bendix, he received the following reply:

One of our engineers here, Jim Watson, read the RB-47 case write up and asked

that I convey to you his comments. He was an instructor for the Air Force teaching maintenance on the AN/ALA-6 unit and he said, "Had I been asked what could have caused the 180 degree ambiguity, I would have immediately responded that the most probable cause would have been failure of the K-301 relay."²⁴

While the failure of a relay in such a manner seems unlikely, it is not impossible for such a failure to occur and go undetected again for a long time period (see inset box for one of my experiences with troubleshooting such a fault). It is plausible that this could have caused a signal from the Keesler Annex CPS-6B to appear the way McClure described in many of his interviews.

Summary

While Sparks appears to present a good argument, he did not falsify Klass' explanation and some of his reasons for dismissing it are incorrect. As a result, we have to consider Klass' explanation for this part of the flight as plausible and more likely than some "unknown intelligence" that was emitting a CPS-6B-like radar beam towards the RB-47.

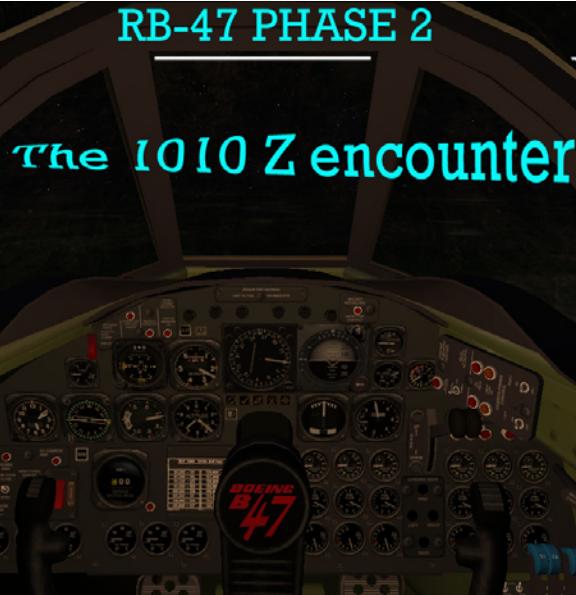
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After the up-scope incident, the plane proceeded due north until it reached Meridian, where it turned westward. The plane then proceeded on, what was described in Chase's UFO report as, a course with a bearing of 265 degrees. The flight seemed to be uneventful until 1010Z (0510 CDT or 0410 CST), when the pilot and copilot saw the UFO appear at their 10 O'clock position and move northward to their 2 O'clock position. The UFO then simply vanished. The description he gave in his UFO report can be seen below¹.

McClure stated he first realized there was a UFO present when Tuchsherer told him that the pilot was chasing flying saucers. McClure, remembering the anomalous signal near the coast, began searching for it. However, was it really that unusual an object that initiated this search?

It seems that it was Klass that first suggested that this was just a bright meteor. That morning, the moon was a waning gibbous in the southwestern sky and



would be washing out faint stars and meteors. For a meteor to be prominently visible it would certainly be near or greater than the brilliance of the planet Venus. Such events are unusual for the casual observer. The sudden disappearance of the object is consistent with the actions of a meteor. When Klass mentioned this potential explanation to Colonel Chase, he responded:

*I certainly do not rule out the possibility. All I ever had to comment was that it was once in a lifetime occurrence. Don't know the odds???*²

It is most interesting that this is the sort of comment one sees in UFO reports of bright meteors. For instance, in a MUFON UFO report for the very bright September 14, 2011 fireball, the witness stated:

But I've seen shooting stars and meteors before and this was like nothing I've ever seen. It looked huge and it was very bright. I've also never seen a meteor that was green like this one (although I have heard of their existence).³

Klass and Chase butted heads over several issues during their letter exchanges but, at this point, Chase seemed willing to accept the idea that what they saw was an unusually bright meteor. In October 1976, Dr. Hynek contacted Chase about the Klass analysis. At this point, Chase disagreed:

I don't accept the explanation

that what I saw was a distant meteor. The visual sighting was approaching from head-on, 11 O'clock, not left to right, for a long enough time, apparently at our altitude, for me to discuss it with the crew, and warn them I might have to take evasive action. Its course changed nearly 90 degrees, flashed in front of us so quickly, that I had not time for evasive action....⁴

His comment about alerting the crew may be an inaccurate recall as McClure stated he knew nothing until #3 operator told him they were chasing flying saucers. The event may have only lasted a few seconds.

If that is true, the UFOs behavior would have been consistent with a meteor.

Surprisingly, Brad Sparks agrees with the meteor explanation so there is no need to beat this dead horse any longer. This part of the incident can be considered explained.

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UNCLASSIFIED

36. How did the object or objects disappear from view? *LIGHTS WENT OUT*

37. What direction were you looking when you first saw the object? (Circle one) *North*

a. North c. East e. South g. West
b. Northeast d. Southeast f. Southwest h. Northwest

38. What direction were you looking when you last saw the object? (Circle one) *North*

a. North c. East e. South g. West
b. Northeast d. Southeast f. Southwest h. Northwest

39. Draw a picture that will show the shape of the object or objects. Label and include in your sketch any details of the object that you saw such as wings, protrusions, etc., and especially exhaust trails or vapor trails. Place an arrow beside the drawing to show the direction the object was moving.

Nothing BUT FAST MOVING LIGHT WAS VISIBLE

40. Draw a picture that will show the motion that the object or objects made. Place an "A" at the beginning of the path, a "B" at the end of the path, and show any changes in direction during the course.

A
1 Miles East
B-47

UNCLASSIFIED

After the meteor/UFO event at 1010Z, Chase continued his flight westward. It was always accepted that the flight path was a 265 bearing towards Waco based on what was written about the case in the 1957 reports. Dr. McDonald, Phil Klass, and CU-FOS all used that value but it really did not work with the subsequent path the plane would take towards the northwest. As a result, Brad Sparks came up with a new and interesting approach to the problem.

Straight and narrow

According to the intelligence report made shortly after the event, the RB-47 was flying in the direction of Waco, Texas from Meridian, Mississippi. If this was true, they were probably navigating towards James Connally Air Force Base. To go from Key Field, to Connally AFB, one needs to fly at a true heading of 266.6 degrees, which is close to the 265 true heading that Chase stated in his report concerning the 1010Z sighting.

In describing the flight, Lewis Chase told Phil Klass:

We actually turned over Meridian, but by the time we got over Jackson we have to be very accurately on course, straight and level for the work to be done. So Meridian would have been the actual turning point with the ECM mission starting at Jackson, in other words the Navigator would have to have a precise fix and you're on course with no turns so he chart the points along the line.¹

It was important to maintain a constant bearing during these kinds of exercises. The sensor equipment did not measure the true bearing of the signals but, instead, measured the bearing relative to the heading of the aircraft. As long as the plane maintained a constant heading, the values obtained by the operators could be easily converted to the actual azimuth relative to the position of the aircraft. However, if the plane was constantly changing direction, it became very dif-



ficult to obtain precise measurements.

The golden path?

Brad Sparks' flight path is based on reaching a point northwest of Fort Worth and working backwards to compute a flight path that matches. There is absolutely no solid evidence that the plane actually made it to this point northwest of Fort Worth other than this being the location of the UFO some two minutes before 1050Z. Are we led to believe the UFO just remained stationary at this point or is it possible it moved TOWARDS or AWAY from the RB-47? Are we even sure that the estimated location is correct from dozens of miles away of a light at night and the radar actually painted the same object? We are not sure but Sparks has simply assumed that this was all accurate and made the flight path fit this pre-determined conclusion rather than seeing other possibilities.

In order to get the plane to this point, Sparks has determined that the plane was not flying on a true bearing of 265 degrees. Despite Chase's statement of the heading of 265 being a true heading in his report, Sparks states it was actually a magnetic bearing. According to Sparks, a 265 degree magnetic bearing actually means that the RB-47 was flying due west at 1010Z (actually the true heading would be about 271.5 degrees for a magnetic heading of 265 at that longitude). This implies that the plane was actually flying

due west along the 32nd parallel. His proof that this was correct is the 1042Z bearing listed by Chase (again this value is stated to be a true heading) being 260 degrees, which is close to the magnetic reading if the true heading was 270 degrees (the actual true heading for 260 magnetic would be about 269 degrees).

Sparks takes some other liberties in creating his path. In his computation,

he uses speeds of Mach 0.75-0.87 mach during the time period of 1010-1042Z. These are assumptions based on what Colonel Chase would mention in his interviews, where he stated he had decreased/increased his speed. However, in his report, the last speed listed they were traveling at was Mach 0.74 until they took up pursuit towards the northwest. As previously noted, the cruise speed of Mach 0.73-0.76 was what one would expect until there was a need to change that speed. Even if Chase did increase his speed as he states, he would not have exceeded the rated speed of Mach 0.85 because he would not want to enter a high speed stall.

There are also problems with trying to fly along a parallel line of latitude as Sparks suggests. It is not quite as simple as flying along a 270 degree bearing and you will stay along the latitude line. The upper level winds will push the aircraft off course. In this case, Shreveport, LA had a wind from about 51 degrees of about 6.5 mph and Jackson, MS had a wind of 11.5 mph from about 0 degrees. Both of these winds would push the aircraft off track towards the south. In order to maintain this type of track, the pilot would have to fly a zigzag path to maintain his latitude. This sort of makes it difficult for the crew of the RB-47 to obtain precise measurements. To add to this problem, the pilot would also have to keep altering his magnetic bearing (assuming he was using a magnetic bearing as Sparks suggests) to



compensate for the changing magnetic declination as he flew west.

As noted by Chase, the goal of this part of the flight was to try and maintain a constant heading with no turns. Sparks' flight path along a line of latitude using a magnetic heading does not seem to match this goal. Instead, it introduces constant changes in the plane's true heading. As a result, I don't think Chase was following a magnetic heading or a constant line of latitude.

Problems galore!

There are many factors to consider when trying to compute a potential flight path for the RB-47. The first of these are the margins for error.

The times given are, at best, approximate. Was the time 1010Z actually 1010.0Z or 1010.5Z or 1009.5Z? At Mach 0.74, thirty seconds of travel (about 4.1 miles) in longitude will cause a change in about four minutes of arc. The same speed will cause about 3.5 minutes of arc in latitude. As speed increases for the plane, the margins of error increases. For the purpose of this section of the flight, it would be best to consider any location given to be +/-3-4 minutes of arc.



A 265 degree straight line course from Meridian (blue path) was apparently made to compensate for the strong winds blowing to the northwest at 0000Z for Shreveport/Fort Worth. This path would have placed the RB-47 about 7 miles north of the reported position at 1010Z indicating the plane was drifting off course to the south (red path). This was probably due to the winds around Jackson blowing the plane to the south. As a result, the navigator would have changed the 265 bearing course to due west (somewhere between the two white paths). Eventually, he would have to turn to a bearing of 260 degrees to reach Waco/Connally AFB.

the navigator was trying to plot a course that takes into consideration the upper level winds he expected to encounter. In addition to being briefed about what to expect prior to the flight, the navigator also would have noted the winds as the plane flew south in the early part of the flight. When the plane turned towards the west at Key Field, the navigator probably gave a heading to Chase that compensated for these winds, which is why the plane was on a bearing to the south of Waco.

However, at time 1010Z, things were not right. If one uses the 265 degree true heading from Key Field and flies towards 91 degrees 28 minutes longitude, the plane arrives at 32.1 degrees and not 32.0 degrees. This is about 7 miles north of their actual location. It appears they were off course! This was probably due to the high level winds, the navigator did not consider in his flight planning. According to the 1200Z radiosonde data for Jackson, the winds were blowing from the north at 10 knots. This is the kind of wind that would throw the course off track. After this 1010Z point, the navigator probably issued a new heading to Chase to compensate for this error. This correction probably would put the RB-47 on a 270 degree heading. Once the navigator got to a point where he could take a course towards Waco/Connally, he would then have changed the course to 260 degrees true heading to get to the way point. Considering how important it was to maintain a fixed heading, there were probably only two course changes one to a true heading of 270 and another back to a true heading of 260. When those exactly occurred is unknown but they were after 1010Z and before 1042Z.

A possible ground track

One thing the pilot mentioned during his interviews was that he was adjusting the speed of his aircraft between 1030 and 1042Z. Chase told Dr. Roy Craig:

So I reached up and pulled the power back on the airplane-slowed way down. Oh, maybe a hundred knots. He stayed at exactly the same azimuth - 2 O'clock. So, then I speeded back up, only this time to max speed. Same thing. Stayed there. So I called the center and told them...And they gave me at this time ten miles range...So

again I go through the procedure, when he calls the ten-mile range, of the slow up, the speed up, and everything, and they keep calling, "ten mile range." Regardless of what I do, it stays at ten miles.³

When asked if he turned during this time period, Chase stated "No, not at this time"⁴.

According to Dr. McDonald's notes from his interview with Chase:

He only did speed changes, but didn't do any heading variations in that interval in the first part.⁵

So, when did this occur? Sparks starts these speed adjustments around time 1030Z. However, the intelligence report does not mention any visual observation until 1039Z. As a result, we really can't say for sure exactly when those speed changes were made. I chose to split the difference between when the radar signal was received and when the visual observation was made for increasing the speed of the RB-47 (time 1035Z). I used the speed of Mach 0.83 since this is the value that Chase lists for his time mark of 1042Z.

In the following table, I compared this corrected path (Using Ed Williams Great circle calculator on-line) with the path presented by Sparks. The two columns to the right involve two course adjustments. The first happened at 1015Z to bearing 270 and the second to a bearing 260 at time 1040Z. In the course adjusted path, the RB-47 is estimated at flying Mach 0.74 until time 1035. After that point, I decided to use Mach 0.83 as that was the value described by Chase in his report for time 1042Z. I did not add any winds to the computation although I did use the track from Key Field to the 1010Z position (bearing 262.5 degrees) to compute the position at 1015Z.

time	Sparks Lon ⁶	Sparks Lat ⁶	Lon	Lat
1010	91-28	32	91-28	32-00
1015	X	X	92-09	31-54
1030	94-28	32	94-15	31-53
1032	94-47	32	94-32	31-53
1035	95-15	32	94-57	31-52
1039	95-56	32	95-35	31-51
1040	96-04	32	95-45	31-51
1042	96-24	32	96-04	31-48

I would consider the values listed as approximate at best. For the purpose of evaluating the radar signals, they will serve as a reference but I do recognize there are margins for error.

Radar signal characteristics

One of the most interesting aspects of this case are the various radar signals that were documented in Piwetz report. At least one of the signals mentioned had the following characteristics⁷:

Frequency	2995-3000 MHZ
Pulse-width	2.0 μ sec
Pulse repetition frequency	600 pulse per second
Sweep rate	4 RPM
Polarity	Vertical

However, the report never really states that all of these signals had the same characteristics. It does mention that at 1030Z the same signal was received as the one at Meridian, which supposedly had the characteristics listed. However, recall that McClure stated he never wrote anything down until after he started seeing all of these signals around Dallas-Fort Worth.

I did not write anything down until the #3 Raven said the remark about the front end "chasing flying saucers"⁸

And

I wrote it down on a piece of paper, we didn't have any logs, we didn't carry any logs on this mission....Those times came from what I just told you. I wrote it down on a piece of paper and we gave it to Piwetz the next day.⁹

At some point, McClure probably received a signal like the one described. However, since these values apparently come from hand written notes and a verbal debriefing the next morning, there is going to be potential for error and confusion. As it is, the intelligence report contained some errors, so there is reason to question that the value given in the report might have come from only one or some of the signals detected by McClure.

With this assumption, I considered the possibility that several of the signals re-

ceived may have been at a frequency other than the one listed. It is important to note that before the Intelligence report surfaced, the general consensus of the crew was the actual frequency seen was around 2800 MHZ. Why would that frequency be so fixed in their minds?

If one reads McClure's statements to Klass about these signals, he appears to confirm that more than one frequency was involved on two occasions:

I will be anything that the signals intercepted when we were in the Dallas area were all CPS-6B signals.¹⁰

After that I am sure we were turning so much that it would have made it move funny. By this time we were deluged with CPS-6B/FPS-10 signals.¹¹

If they were signals from different radars, they could not possibly be using the same frequency. This implies that McClure was sweeping over a range of frequencies other than one specific frequency. With that in mind, we have to consider the possibility that these radar signals were from a range of frequencies in a band of about 2700-3000 MHZ or greater.

Tracking the beams

At some point near 1030Z, McClure began to look for radar signals similar to the one he had seen earlier. He then wrote these bearings on a piece of paper. This was the primary source of information for Piwetz's report, which described the following signal bearings¹²:

Time	Relative Bearing
1030	70
1035	68
1038	40
1040	40 and 70
1042	20

McClure told Klass that the accuracy of these bearings were "Within 3-5 deg"¹³. So we have to give at least a +/- 3 degree margin of error on these values. There are other margins for error. These values are relative to the heading of the aircraft. If it was pointed to 270 degrees, then one would add the number to 270 to get the azimuth relative to the aircraft of the signal. What if the plane was not pointed exactly at the heading recalled?

Chase might think that he did not deviate his course but is it possible that he might have shifted one or two degrees in his flight path? The exact heading of the aircraft at the time of the measurement must have a margin of error associated with it. In my opinion, one has to give +/- 2 degree course error as well. As a result, one should expect the total margin for error for these bearings to be at least about five degrees and possibly more.

If McClure had swept back and forth looking for signals in the range of 2700-3000 MHZ, he could pick up signals from other radar beams nearby. It seems probable that he would note any signals he received that were similar to the one he recalled from the upscope encounter.

With all of that in mind, let's give a rough idea of where the radar signals came from using the course I described (Note: these bearings are similar if one uses Sparks' positions except for the 1042Z bearing):

Time	azimuth
1030	335-345
1035	333-343
1038	305-315
1040	305-315 & 335-345
1042	275-285

According to Sparks, many of these signals came from the UFO and some came from the Duncanville CPS-6B near Dallas Texas.

McClure made a point in his discussion with Klass that there were a lot of radar beams present and he felt he knew the sources of these signals.

I feel sure that at some altitude near 40000 ft I could have intercepted any of the sights (sic) of OK city, Duncanville and Houston.¹⁴

From his experience, he apparently felt that the equipment was more than capable of detecting these radar beams from

great distances. Is it possible these radars played a role here? Houston was to the south and it really is not to be considered since McClure was focusing his attention towards the northwest. However, what about OKC's radar, which was about 300 miles away at time 1030Z?

According to the radar horizon calculation, a plane at 34,500 feet can potentially see a radar signal from OK City (elevation 1325 feet) from as far as 314 miles away. McClure was only trying to detect a radiated radar signal. As long as the RB-47 was in the radar beam, and it was strong enough, he probably could detect it.

So exactly what did he detect if it was the OKC FPS-10? There are three beams that were at a low angle with respect to the ground:

1. The Vertical lower beam at 2965-2992 MHZ
2. The EW beam at 2860-2900 MHZ.
3. The Vertical center beam or its lower side lobe. A tropospheric duct might allow it to be seen at a much greater distance than previously calculated.

So what were the bearings the OKC and Duncanville radar?

Time	Duncanville azimuth	OKC azimuth
1030	289	324
1035	296	331
1038	302	336
1040	309	340
1042	319	344

Look at the OKC radar position of being 325/324 and 333/331 at the times when the UFO was at an azimuth of 333-345 degrees. The time 1030Z signal is a marginal match for the OKC radar at best but the 1035Z bearing seems reasonably close.

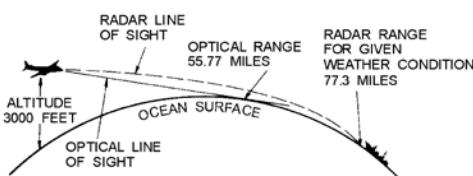
There is another possibility for the 1030Z reading and that is the Bartlesville FPS-10 radar near Tulsa. It was at an elevation of about 1000 feet, which would make its radar horizon of 307 miles. It had a bearing of 343 degrees, which closely matches the azimuth reported. Unfortunately, it was 350 miles away from the RB-47, which is 43 miles beyond the radar horizon. Even closer at 307 miles with a bearing of 342 degrees was a WSR-1 at Tulsa, which had become operational in 1956. At an elevation of about 650 feet, its radar horizon was about 299 miles. As previously stated regarding the OK City radiosonde data, there were potentially unusual propagation conditions at the 2000 foot level that might have allowed for signals to be seen beyond the radar horizon. Either radar site might have been detected and could have been the source of the signal measured.

At 1038Z, the signal reported appears to be close enough to the Duncanville azimuth to be a match (Sparks agrees that this was Duncanville). At this point they were only about 100 miles away. McClure should have seen the signal sooner. He probably did but did not record it because it was not towards the northwest, where the UFO was supposedly located. Only when it began to appear in the northwest sector, did he suddenly consider it something worth recording. Because this signal was so strong, he probably was able to record the characteristics of it and this is where the values listed in the intelligence report come from.

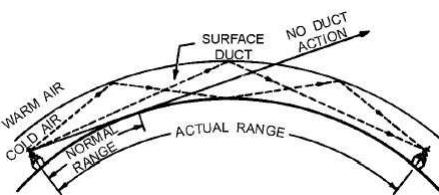
Both Klass and Sparks assumed the 1040Z signals were two signals seen on the display at the same time but the report does not state this. It simply states that two signals were detected at these two bearings:

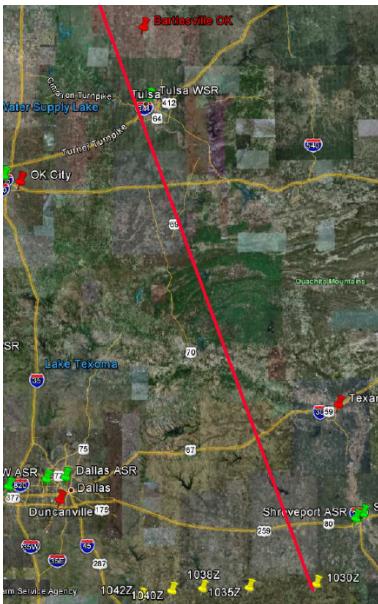
AT 1040Z ECM OPERATOR NR 2 REPORTED HE THEN HAD TWO SIGNALS AT RELATIVE BEARINGS OF 040 AND 070 DEGREES.¹⁵

Another interpretation is that McClure went between the two frequency ranges to see if the signal he previously detected was still there. His hand written notes then noted the two signals were seen at these two bearings. That 30 degree difference is also interesting because the difference between the two azimuths for Duncanville and OKC at time 1040Z is 31

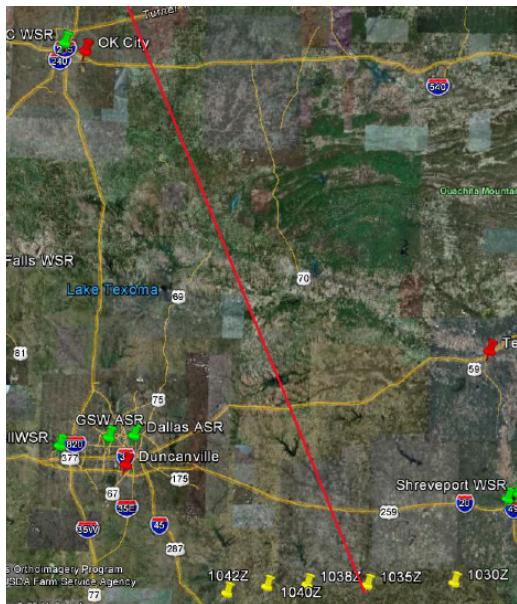


The radar horizon is further than the optical horizon by a factor of about 1.3 times due to normal atmospheric refraction (left). This range can be extended further. Greater refractive conditions will extend the radar range beyond the normal and a severe temperature inversion will trap the radio waves and extend the range even further (right).¹⁶

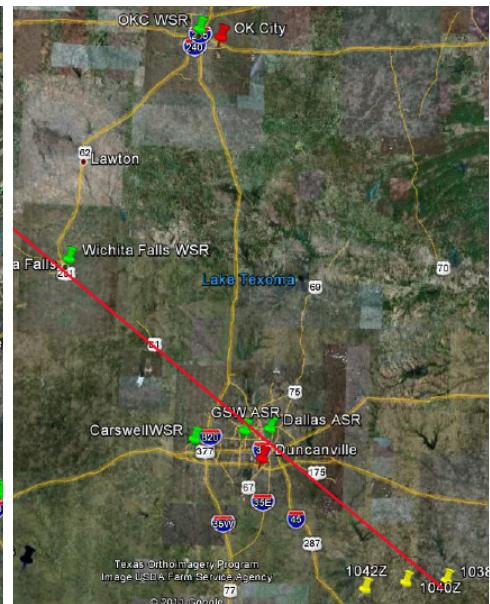




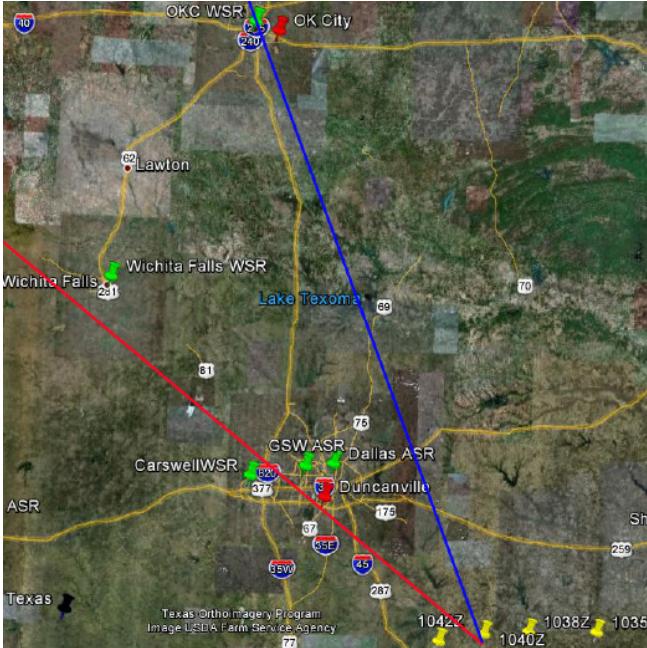
1030Z



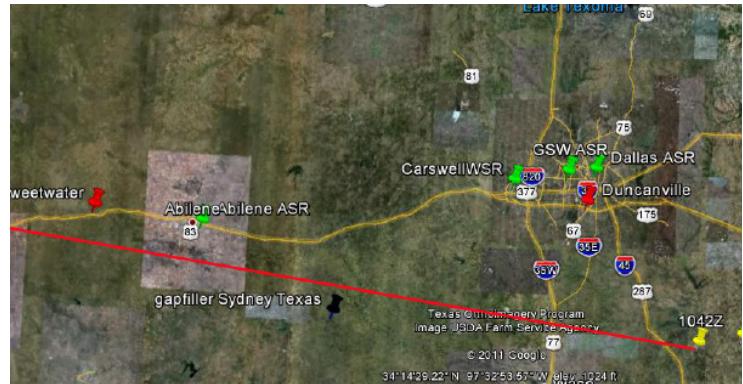
1035Z



1038Z



<1040Z



1042Z

The following Google Earth images show the location of the RB-47 (my estimated positions) and the various radar stations. The heavy red line is the apparent azimuth based on a 270 degree heading (except the 1042Z bearing). While the 1030Z and 1035Z signal bearings are in the general direction of radar stations, the 1038Z and 1040Z appear to be very convincing matches for OK City and Duncanville.

degrees. Is this just a coincidence or is it a potential clue?

The final contact is interesting in that it appears to be unrelated to the Duncanville and OKC radars. Looking at the sketch in Chase's UFO report, we see him marking the visual contact at this point in time as being at the one O'clock position (roughly 30 degrees). If McClure was looking for a radar contact to match the visual bearing, he apparently found one ten degrees away at a true bearing of 280 degrees. On that bearing, approximately 250 miles distant, was Sweetwater AFS. However, they only operated non-S band radars (MPS-11 and TPS-10D) in 1957. In 1960, a gapfiller S-band radar (FPS-18)

was located at Sidney, Texas (about 150 miles at 270 azimuth) but that probably wasn't operating in 1957. A probable source is the Airport Surveillance radar (2700-2900 MHZ) at Abilene, 220 miles away on a bearing of 282 degrees. There is also the possibility that an unknown S-band ground or airborne radar was present at this bearing (Dyess AFB is located in Abilene). It gives reason to speculate that the source of this signal might have come from something other than an "unknown intelligence".

Ghost light!

Starting at 1039Z, the pilot Chase and copilot McCoid are recorded as see-

ing a light to their Two O'clock position that was an estimated 5000 feet below their airplane. The color appears to have been reddish and very bright. In the intelligence report, Piwetz states that they observed two lights. Chase and McCoid deny that they ever stated they saw two different lights and it has been accepted that this was an error on Piwetz's part.

This light/UFO was supposedly tracked by the Duncanville radar from a distance of about 100 miles (about time 1038Z). As previously described by Chase, the light/UFO maintained a fixed distance of 10 miles at the same position relative to his plane (2 O'clock = 60 degrees relative) no matter what his speed. This seems rather

interesting. It is almost as if the radar contact was mirroring the RB-47's motions like a "ghost". One wonders if this wasn't just a ghost echo of some kind.

Only as they approached Dallas did the light's relative position change. Chase stated the object moved towards the dead ahead position. However, his UFO report states it was at a relative bearing of roughly 30 degrees (290 degrees true) at 1042Z. According to Chase, the UFO then turned towards the northwest:

...it veered to the right, not by a very large angle (10° to 20°, Chase estimated) and went up the "valley" between Fort Worth and Dallas.¹⁷

Did this happen before or after the position in his sketch? Based on this visual description it would have been after since the bearing to the gap between Fort Worth and Dallas was a true bearing of 320 degrees.

It is important to note that most of these visual bearings (which are ball park figures and not precise measurements) are in the direction of the Fort Worth/Dallas area. Was there anything over those cities that might have produced the light? Potential sources of the light will be discussed in another section.

The mystery signal

Much is made about the signal described in the Piwetz report as if it were proof of an "unknown intelligence". Compare the mystery signal to the AN/CPS-6B:

	Mystery signal	CPS-6B VC beam ¹⁸
Frequency	2995-3000 MHZ	2992-3019 MHZ
Pulse-width	2.0 μ sec	1.0 μ sec
Pulse repetition frequency	600 pulse per second	600 pulse per second
Sweep rate	4 RPM	2-15 RPM
Polarity	Vertical	Vertical?

The polarity of the CPS-6B is never listed in any of the documentation I could find. However, based on what I could find about the polarization of electromagnetic waves, it seems that the CPS-6B was probably vertically polarized.

About the only significant difference between the two signals is the measured pulse-width. Phil Klass suggested that the signal may have been smeared, based on information provided by radar expert Rod Simons.

Pulse width is one of the least accurate parameters measured on ALA-6 type equipment. Two possible causes of inaccuracy: one is ground-bounce which causes pulse-smearing; another possibility is that equipment is not tuned up properly.¹⁹

Sparks implies it was impossible for this smearing to occur and I am sure that he feels the equipment was tuned properly. However, is it just a coincidence that the other characteristics are the same as the AN/CPS-6B/FPS-10?

What about other possibilities for the pulse width not being the same? Since these were hand-written notes on a piece of paper, what prevented this value from being a simple mistake on the paper, illegible number, or transcription error? All can be possible reasons for the mismatch. Stating the mystery signal could not be the CPS-6B/FPS-10 because of one characteristic being off while the others are matches for that radar is being overly dismissive. It ignores the nature of the data and how it was recorded.

Summary

While the "ghost light" will be discussed later, the radar signals were the component that was addressed here. There is no evidence presented to date that shows the light was actually emitting the signal. However, there seems to be sufficient information to conclude that most, if not all, the radiated signals received came from terrestrial sources if one assumes that all the signals did not have the same exact frequency. If this is accurate, then the only thing mysterious about this part of the incident is a nocturnal light that nobody could readily identify. If this is true, can this case really be considered solid evidence of anything exotic?

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The RB-47 pursuit is actually two segments. The first eight minutes involves the aircraft's beeline approach towards Fort Worth and Dallas towards the UFO. This was followed by a 360 degree turn and departure of the plane from the area

Eight minutes to Dallas

At 1042Z, the RB-47 turned to the northwest to pursue the UFO it saw in the direction of Dallas-Fort Worth. In Chase's UFO report, he states he took a bearing of 320 degrees true (Note: This is the only time that Sparks accepts the heading written by Chase in his report as being a true heading and not magnetic!). The path to Dallas was made at maximum speed according to Chase. Both reports (Chase and Piwetz) state they accelerated to Mach 0.83 at 1042Z and took up pursuit. However, after looking at the flight path with Klass, Chase stated:

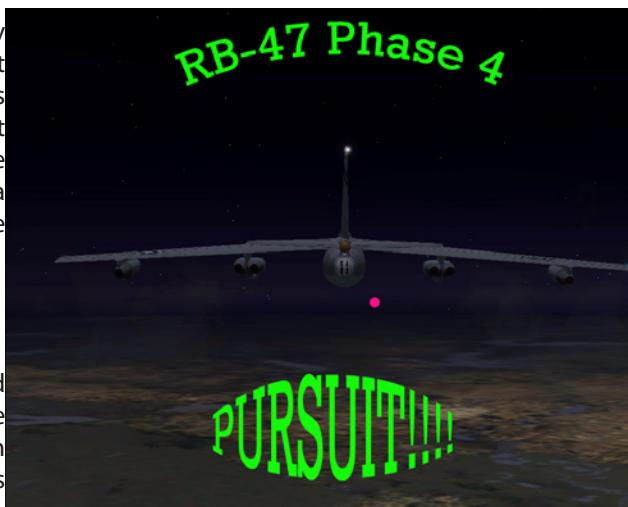
I don't think Mach .83 can be write (sic) for an extended period of time – as I went to maximum allowable mach – mach .87-.92 sounds more like it.¹

Chase was speaking from memory but we know from the aircraft's specifications the maximum speed listed for the plane is actually Mach 0.85 and that speeds above that could cause a high speed stall. So, it seems that this value was something of an exaggeration on Chase's part.

The air crew estimated the UFO/light was 10 nautical miles northwest of Fort Worth. This was apparently confirmed by Duncanville's radar (although no altitude was given for the object they tracked). In his early discussions and his report in 1957, Chase seemed to agree with this position for the aircraft at time 1050Z. Brad Sparks would use this position as his endpoint for the flight to the northwest.

At time 1050Z, as the plane approached the light, it disappeared, McClure lost the signal he was tracking, Duncanville lost its target, and the navigator supposedly lost his radar contact with the UFO. The UFO had simply vanished from all sensors as if it were never there.

Pilot Chase describes what happened at



1050Z in his interview with Dr. McDonald:

....He stated that, as far as his impressions as the pilot was concerned, all of the closure motion was due to his own flight speed, as if the Unknown were then stationary.²

While Chase may have felt the light was stationary, one could also conclude that the light may have been moving towards or away from the aircraft at a much slower speed.

He also described that he did not meet the light "head-on".

I asked him the way in which he flew over the object. It became clear that he did not pass directly over it, but flew to the right of it. He said it was almost below them, nearly 90 degrees below the horizon when it blinked out.³

Dr. McDonald thought he flew to the right but what Chase told Klass was:

...I understand why you wouldn't understand me keeping the object off to my right. I turned right to an intercept angle, but even as I closed on it, in its apparent hovering, I kept it right.⁴

Perhaps McDonald was confused in his notes about what was right and what was left. In either case, Chase seemed to indicate the object was apparently stationary and he passed with the light off to one side.

One item I noticed when flying the B-47 in Flight Simulator X was that the pilot can not see directly below the aircraft.

The cockpit does not allow for a good view unless the pilot banks the plane. Chase told Klass that it disappeared before it became invisible from his point of view. Flying straight and level in Flight Simulator X gave the impression to me that the pilot could not see objects below him about 3 miles in front of the aircraft (at an altitude of 34,500 feet). I am not sure if this was the case for a real pilot in the aircraft but if it were, that means that at a depression angle of about 70 degrees, things become difficult for the pilot to see from his position in the cockpit.

If the UFO were 5000 feet below him at this point, this would mean the closest the UFO was before they overshot it, was less than a mile away. Despite this proximity, the UFO still was just a bright light and nothing more.

Radar contact???

In addition to the ECM#2 operator receiving radar signals, Sparks states the navigator was close enough for a radar contact:

The first UFO overshoot is evidently the time when the RB-47 navigator, Maj. Thomas Hanley, briefly detected the UFO on his aircraft navigation radar, APS-23, after apparently spending quite some time attempting to do so.⁵

This part of the incident seems more fiction than fact. His conclusion is based on two bits of information. One was the testimony of McClure, who states that Hanley tracked the UFO with his radar and the other is the comment in the CIRVIS report that states the B-47 tracked the UFO.

However, this seems unlikely because Hanley told McDonald that he never tracked the UFO.

He said that he had search radar on and was looking all around and in every way he could, but never had any radar contact with the object.⁶

McDonald stated he could not confirm one way or the other by the Copilot, McCoid:

...He could not recall whether the navigator got any radar return on his set.⁷

Chase's actual report, written in 1957, states they were unsuccessful on tracking it with the plane's airborne radar (although he did mention scope photographs were taken, which was denied by Hanley). Chase may have been referring to the ground radar and the CIRVIS report probably reflects the crews reception of the radar signals and not an actual tracking with the navigation radar. All of this seems to indicate there never was any tracking of the UFO with the airplane's radar.

1050Z is where???

At this point, it is important to discuss the flight path and where the RB-47 may have actually been at time 1050Z. One can not accurately determine where the RB-47 was without the Navigator's log, but we can make some assumptions and determine the possible position.

We do know the capabilities of the aircraft though from the flight envelope chart and manual. Since the plane could only travel at Mach 0.85 at maximum (about 9.7 miles/min at 34,500 feet), the plane could only displace about 68 miles in the seven minutes after the turn towards 320 degrees (which, according to Sparks took a full minute).

In my computed path (which is an approximation), the 1050Z mark occurs very close (about 2.5 miles SSW) to the Duncanville radar (approx 96-54.5/32-39).

Time	Lon	Lat
1042.5	96-08	31-49
1043	96-11	31-52
1044	96-17	31-58
1045	96-24	32-05
1046	96-30	32-11
1047	96-36	32-18
1048	96-43	32-24
1049	96-49	32-31
1050	96-56	32-37

When discussing the flight path with Klass, Chase recognized problems with the speed and distance. He would eventually make the following statement:

We were just barely south of Fort Worth-Dallas, or just abeam, when the object disappeared. 1050 was the time the object disappeared.⁸

If this position is correct, it explains why the radar signal disappeared for McClure. Although Klass felt the signal would disappear farther out, Rod Simons felt that the sensors might be possible to detect the Vertical center beam right up to the antenna. The disappearance may have occurred due to the signal being too weak or the beam of the radar being below the antenna's depression angle. It is hard to ignore the proximity of the plane to the Duncanville radar site when contemplating why the signal was lost



Round and round we go

After overflying the UFO, Chase began looking for it again. The natural thing to do would be to bank the plane and attempt to make another pass. In this case, he began a turn to port. In his interview with Klass, Chase stated he was told by McClure that he had a bearing on the UFO and he looked in that direction and saw a light. He then maneuvered the aircraft in a big circle in order to intercept the UFO. Exactly when his turn to port began is hard to say but one can reasonably assume that it was between 1050 and 1052Z.

In the Piwetz account, at time 1052Z Chase saw a light/UFO, which forced him into a turn. We are not even sure that this UFO/light was the same one he had overflown. All we know is that he saw a light that he estimated was at 15,000 feet. This is where he states he made a dive at the UFO. As he closed within 5 NM, the UFO/light simply disappeared. There was no evasive maneuver, no rapid acceleration, and no craft visible. It simply winked out.

At this point, the plane continued to fly in a circle, looking for the UFO again. The exact position of this circle is not that clear. We know it happened around the city of Fort Worth but exactly where is hard to say. The Piwetz report describes the plane being near Mineral Wells at 1055Z,

which pilot Chase told Klass was not possible. It is clear that Piwetz was trying to be accurate but the air crew just did not get some of the details correct or he misinterpreted what they told him.

At 1055Z, it was realized the plane had used a great deal of fuel and needed to return to base. The RB-47 continued flying in a circle and at 1058, they once again saw the UFO at 20,000 feet some 20 NM northwest of Fort Worth. It is not clear if Duncanville had any contact with this UFO because at time 1057, they stated they had no contacts.

The report is quite confusing at this point and Piwetz made some mistakes in interpreting what the crew told him on several occasions. Chase mentioned some of this in his discussion with Klass:

I'm sure the confusion in the intelligence report is misunderstanding oftentimes for the object and times for the aircraft...What a shame we weren't shown the intelligence report then...⁹

Klass seems to think the final position of the light may have been an error and the actual position was southwest and not northwest of Fort Worth. Chase never mentioned any visual sighting of a UFO after the second one, which he dove upon. Could it be that Piwetz just misinterpreted what the crew stated and was simply repeating the account concerning the initial approach to Fort Worth-Dallas? It seems plausible this was the case.



RB-47s are not dive bombers

One part of the Chase account seems to be inaccurate. According to him he was flying the RB-47 at high speed and then dove on the UFO by dropping 15,000-20,000 feet in a minute or so. Could the RB-47 accomplish such a maneuver?

It seems highly unlikely that the plane would (or could) be put in a steep dive over a short distance from 34,500 feet to 15,000-20,000 feet. The B-47 operations manual states:

2-47 The extreme cleanliness of this airplane and the fact that it is operating near the buffeting range in level flight limit it to very shallow dive that must be executed with extreme care. As with all high speed operation, abrupt accelerations must be avoided.¹⁰

This seems to be within the guidelines outlined in the B-47 operations manual, which describes the descent procedure as follows:

Maintain cruising altitude until about 45 nautical miles from landing point....Descend at the maximum rate but do not exceed Mach 0.82 and/or 304 knots IAS.¹¹

This indicates that the maximum descent angle would be less than 10 degrees. Col. Walter Boyne states on his blog that the plane descended for landing at high speeds using a rate of 6000 feet per minute. All of this indicates the plane descended at an angle of less than 10 degrees. For a plane to descend roughly 15,000 feet in about 10 miles, the angle of attack would have been something like 17 degrees so it appears that Chase's description of this event may not be quite accurate.

McClure was of the opinion that this dive never happened.

I DON'T REMEMBER NO PART OF THIS DIVING BUSINESS AND I DON'T BELIEVE IT HAPPENED...¹²

Dr. McDonald's interview notes with the copilot McCoid also indicated this maneuver probably did not happen as described:

He did not recall overflying the Unknown, nor did he recall the bank or dive near Mineral Wells.¹³

McClure was in the capsule and probably could only tell if there was a dive if the plane's angle of attack changed drastically. This would be the case if it was a sharp dive towards 15,000 feet. So, any change in altitude, must have occurred

over a much larger distance than a quick change in altitude as claimed.

This brings us into several possibilities. We do know the plane eventually reached around 20,000 feet but how did it get there? I think there are some possibilities that might explain the change in altitude without a dive-bombing attack on the UFO as described by Chase.

2000 feet per minute

Is it possible that the RB-47 actually began descending after the turn at 1042-43Z? Chase made the following statement to Dr. McDonald regarding the start of the pursuit at time 1042Z:

He had to contact FAA to get a clearance to change his flight path at this point. They cleared all the traffic out of there, and gave him an OK on it.¹⁴

However, he stated almost the same exact thing to Dr. Roy Craig regarding the events near Mineral Wells:

So, as I came around, about half way around the turn, we picked him up with lights on again. Only now down at a lower altitude. I told GCI that I estimate him to be at about 14,000 feet. I said I'd like to go down on him and they said, "Roger. We have the traffic in the Fort Worth area cleared out. It's clear to go down."¹⁵

So, it might be possible that the plane actually began descending at 1042Z towards 15,000 feet. If Chase continued flying at the maximum possible speed, the lower altitude would allow higher air speeds. By my calculations, it would extend the 1050Z point about two miles to the northwest.

In that scenario, it is possible the plane descended to 15,000 feet at a rate of about 2,000 feet per minute. I doubt this scenario is likely and suspect there is a more likely sequence of events.

5000 feet per minute

Another possibility is the plane began diving towards 15,000 feet over a three-four minute period starting just before time 1052Z. I think this is a more likely possibility. In that scenario, the plane would have descended at a rate of

about 5,000-6,000 feet per minute, which is consistent with what Colonel Boyne wrote about the B-47 landing rate. The angle of attack in that case would have been something like five degrees, which may have not been that noticeable to McClure in the ECM pod. I would incorporate this scenario in my flight path in the circle around Fort Worth:

Time	Alt	Lon	Lat
1051	32,000	97-02	32-44
1052	27,000	97-11	32-48
1053	22,000	97-21	32-48
1054	17,000	97-30	32-44
1055	15,000	97-35	32-36
1056	16,000	97-34	32-28
1057	17,000	97-27	32-23
1058	18,000	97-18	32-22
1059	19,000	97-11	32-27
1100	20,000	97-08	32-34
1101	21,000	97-04	32-41
1102	22,000	97-01	32-48

Some notes about this path are that the plane was flying at Mach 0.85 initially and continued on its 320 bearing for one full minute after that before beginning the turn. Initially, the turn was calculated at 30 deg/min and I increased it to 40 deg/min at time 1056-59 as the plane began to slow down. The planes departure speed was Mach 0.74 (539 mph) on a bearing of 20 degrees.



The Departure

At 1102Z, with the RB-47 running low on fuel, Chase turned the plane towards Forbes AFB near Topeka, Kansas and exited the area. Nobody knows what happened to the UFO and nobody seemed to care at this point. No fighters were sent up to investigate that morning even though there were plenty of sources for such aircraft in the area.

According to the Piwetz report, they were able to observe the radar signal from the

UFO all the way up into Oklahoma when they were near Oklahoma City. These radar signals were at a bearing of 180-190 degrees.

There is one point of contention in this final portion of the report. The report states the plane was abeam of OKC at time 1140Z. The distance from Dallas to Oklahoma City is only about 190 miles. Does this mean the plane was operating at speeds of about 300 mph (260 knots), where the plane's fuel efficiency was low (see the graph and comment from the B-47 manual on page 7)? In Klass' original plot, he assumed this must have been an error in the 1102Z comment and that it really was supposed to read 1120Z. That would mean the RB-47 was loitering around looking for the UFO for 20 minutes after descent to 20,000 feet. One can't be sure and it seems unlikely that the plane would have slowed down to a speed that was not efficient to conserve fuel. It is more likely that this time of 1140Z was in error and it probably was more like 1120Z.

Radar signal analysis

There are several bearings to radar signals given in the Piwetz account that should be discussed at this point.

Time	Relative bearing ¹⁶
1042.5	40 and 70
1044	50
1050	Signal lost
1051	160
1052	200 moving up scope
1057	300
after 1102	180-190

For the 1042.5 signals, the RB-47 was about halfway into its turn from 260 to 320 giving a true heading of about 280-300 degrees. This gives us a true bearing of these two contacts of 320-340 and 350-010. The true bearing towards Duncanville was about 322 degrees and the bearing towards OKC was about 345 degrees. Like the previous two signal observations at time 1040, the report only notes that the operator recorded two signals at these bearings. They did not have to be the exact same frequency. Considering the margins for error, this appears to be a possible match.

At time 1044Z, the plane was on a heading of 320 degrees, which makes this signal interesting. The bearing of the signal would be at 10 degrees true, which is too far to the right to have been the OKC or Duncanville radar beams. However, at a true bearing of about 2 degrees is that pesky Bartlesville, OK FPS-10 and 4.5 degrees for the Tulsa WSR-1. Bartlesville was still about 330 miles away (beyond the normal radar horizon) but Tulsa was closer at 290 miles (approx). Once again, it is important to note there were conditions in the atmosphere that might have extended the distance at which these signal could be detected. Other potential suspects would include unknown S-band ground or an airborne radars.

We do know that McClure was following one radar signal throughout this part of the pursuit because he notes that the signal was lost at time 1050Z. Klass points out that if he were focusing on the center beam of the Duncanville radar and the plane passed close to the radar, this signal would simply "disappear".

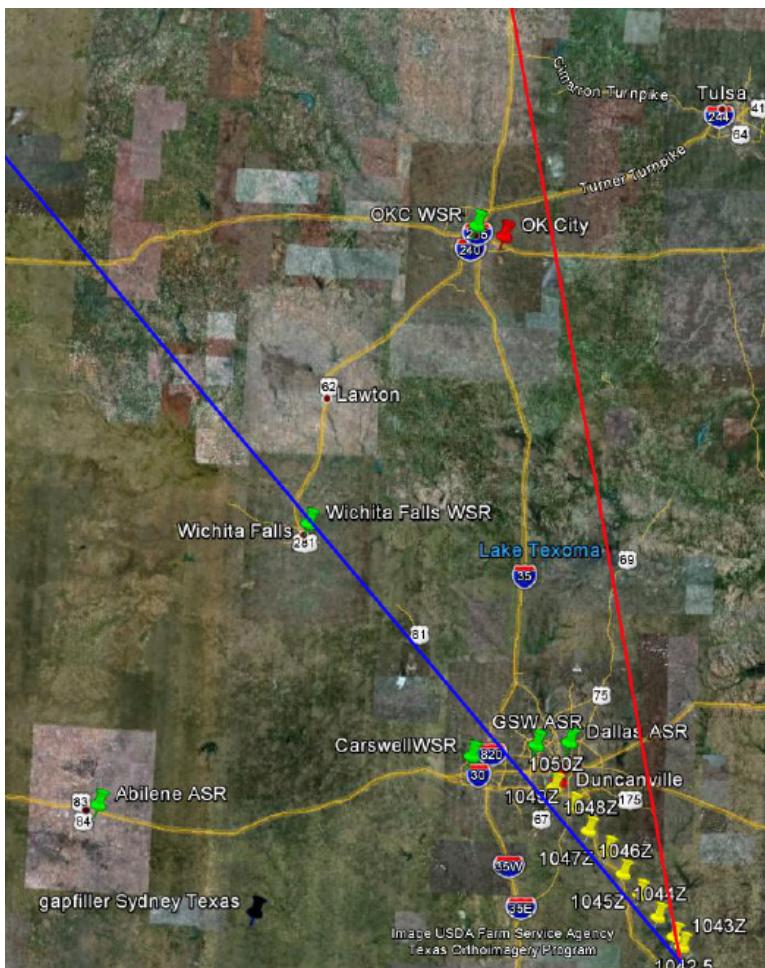
After leaving the area close to the radar, the signal would reappear towards the rear of the aircraft exactly as described at times 1051 and 1052. A turn towards the west would cause the signal to move towards the port side and go "up scope". The plane continued its turn to port and, based on my computed flight path, the plane was about 24 miles SSW of Fort Worth at time 1057Z. From this position, the Duncanville radar station was at a true azimuth of 60 degrees. With a heading of about 120 degrees, the resultant relative bearing would have been the same 300 degrees in the Piwetz report.

After 1102Z, the plane began its return to Forbes AFB in Kansas. The signal now appeared behind the plane in the direction of the Duncanville radar and disappeared when they approached Oklahoma City (about 190 miles away). At this moment, the plane was at 22,000 feet, which is below the optical line of sight for the lower sidelobe of the Vertical Center beam and probably beyond that sidelobe's radio horizon. However, they were not below the radar horizon for the radar's other beams. The coincidence of the detected beams direction being towards Duncanville indicates it is plausible that this was the source of the signal.

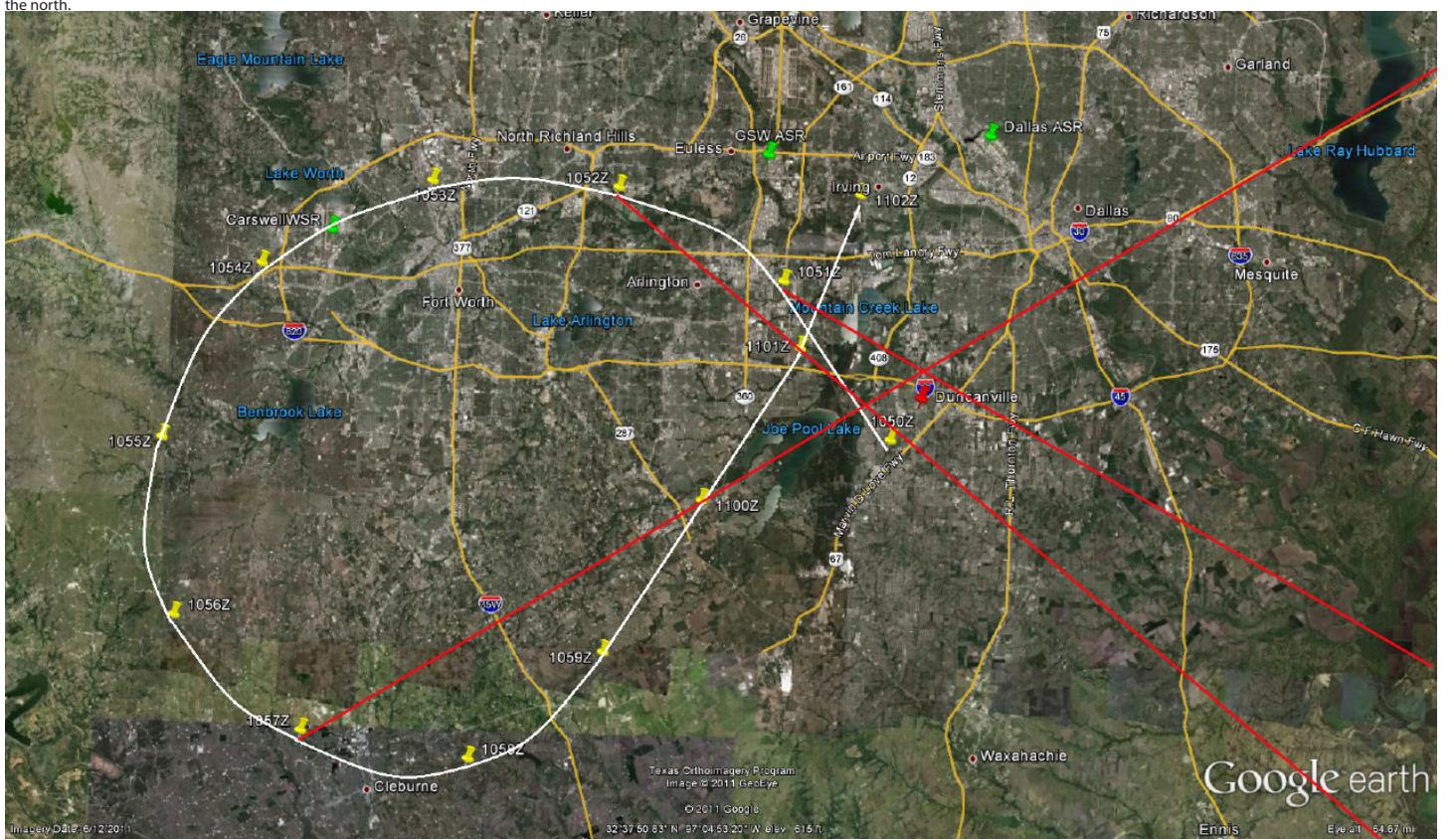
Except for the 1044Z signal, there seems to be reasonable explanations for all the other values. It is even possible that the 1044Z signal is explainable. One can reasonably suggest that the radar signals during the pursuit phase really were not very mysterious and the only thing strange about this part of the incident were the lights that vanished when the RB-47 came near them.

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10. USAF. B-47A Flight operating instructions handbook. Secretary of the Air Force and the Chief of the Bureau of Aeronautics. 1 July 1950 updated 30 October 1950. P. 42.
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13. McDonald, James. Interview notes with James McCoid. February 2, 1969.
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15. Craig, Roy. UFOs: An Insider's View of the Official Quest for Evidence. Denton: University of North Texas Press, 1995. P. 140
16. USAF Project Blue Book - UFO investigations. Fold 3 Web site. Available WWW: <http://www.fold3.com/image/#6962271> and <http://www.fold3.com/image/#6962283>



The two radar bearings mentioned during the approach to Dallas at times 1042.5 (left) and 1044Z (right). The 1042.5Z signal assumes a heading of 280 degrees and gives indication that the two signals might have been Duncanville and OKC (about 260 miles away). As previously noted, the 1044Z bearing seems to point towards nothing but open ground until one reaches the Tulsa/Bartlesville radar sites, which were 290-330 miles to the north.



Radar signal bearings after the overshoot at time 1050Z. The positions are approximate and, in this version, the plane does not start seeing the Duncanville beam at 180-190 until some time after 1102Z. All the bearings given during this time period seem to indicate the Duncanville Radar was the source of these signals.

After the RB-47 returned to Forbes AFB in Kansas, several reports were made. Each contained information that was contradictory and seemed to contain errors.

Duncanville's CIRVIS report

Shortly after the events (at 1445Z), the ground radar station (Duncanville), filed a CIRVIS report. Some comments worth noting are:

1. *B-47, 30,000 feet, Mach 0.87, Forbes AFB, Kansas. B-47 chased UFO over Fort Worth but was unable to overcome UFO.*
2. *Airborne radar was being used on B-47 to track object Aircraft stated they had good contact however Utah had negative contact with object.¹*

The first comment seems to be an error. The plane was supposedly at 34,500 feet and the maximum speed was Mach 0.85. Did the radar operators have problems determining the speed and altitude of the aircraft or was the 34,500 feet given by the crew too high?

The second comment also seems to contain errors. The first being that the RB-47 tracked the UFO with their radar. We know that the navigator denied this happened. What it probably was referring to was the tracking of the radar signal by McClure. The second error is that Duncanville denied tracking the UFO. Klass suggested that this was because they had identified the UFO as an aircraft. It seems the CO probably did not want to get involved in any UFO reports. It also may indicate that the type of contact they saw may have not been a solid return and they determined it just was not a good enough confirmation.

Reading the Piwetz report, it is odd that Duncanville had to be told where to look for the UFO on their radar screen:

ADC REQUESTED AIRCRAFT TO GO TO IFF MODE III FOR POSITIVE IDENTIFICATION AND REQUESTED POSITION OF OBJECT. CREW REPORTED POSITION OF OBJECT AS 10NM NORTH WEST OF FT WORTH, TEXAS, AND ADC SITE IMMEDIATELY CONFIRMED PRESENCE OF OBJECT ON THEIR SCOPES.²

This indicates that Duncanville needed to be directed towards the UFO. According to Chase's testimony, they were tracking the UFO for some time. Did they suddenly lose it or did they have problems

Aftermath

recognizing it? One also wonders why the radar sites at Texarkana, England, and Ellington did not see the UFO when the RB-47 was moving through their area even though they should have seen it. It is too bad that Duncanville did not obtain a very convincing target or file a report that was more informative concerning any targets they did have.

Debriefing³

After landing, the crew was debriefed by the intelligence officer Piwetz. It was his report that added a lot to the RB-47 case file. However, there are portions of his report that appear to be erroneous based on what the air crew would later state to interviewers:

1. The "up-scope" incident was stated to have occurred near Meridian, MS, when, by all accounts, it occurred near the coast.
2. The report stated both pilot and co-pilot saw two UFOs simultaneously, when they only reported one.
3. It was stated the plane was near Mineral Wells, Texas at 1055Z, when it was not possible for the plane to reach that location.

Piwetz was convinced the UFO was emitting the signals and stated so in his report. However, this conclusion would be considered somewhat hasty since he seemed to have little data to work with other than notes by McClure and only partial recordings (starting at 1048Z) of the events described.

UFO report⁴

In September, Major Chase would complete a UFO report. Some of the things he noted were:

1. There was no moon even though there was a bright waning gibbous moon visible.
2. The radar operator never obtained any radar contact.
3. He states that ECM equipment tracked the object and that radar scope pictures were taken but then circled "NO" on "Were photographs taken?" My guess is he was implying nobody took photographs of the

visual UFO. McClure and Hanley denied taking any photographs so he must have been talking about Duncanville, which denied ever tracking the UFO in their report.

4. He incorrectly listed the upper level winds as coming from a bearing of 260 at 50 knots.
5. He incorrectly noted that the plane made the turn towards the northwest at 1010Z.

Many of these errors could have been caused by simply memory issues and clerical mistakes on the part of Chase. However, it demonstrates that one has to question how accurate the report was when it was written two months later.

Summary report⁵

A hand-written report is in the Blue-book files. Exactly who wrote it when is hard to determine as it is unclear. At the very end of the report it states:

A study of radar data that was later submitted indicated that the aircraft's radar signals had the characteristics of ground radar equipment. Further, there was no firm correlation between the ground intercept and the visual sightings. The change of colors: blue, white, red are suggestive of aircraft lights which normally, all air crews would have little trouble recognizing. It was also strange that objects disappeared or stopped when they had reached the large cities.

In joint review with the CAA of the data from the incident, it was definitely established by the CAA that object observed in vicinity of Dallas and Fort Worth was an airliner.⁶

This was probably why the card for Blue-book concluded it was flight 966, which was a mistake.

Blue Book perplexed

On 30 October, 1957, a memo was sent to Captain Gregory of project Blue Book by AFCIN-4E1

This report is difficult to evaluate because there is such a mass of evidence which tends to all tie in together to indicate the presence of a physical object or UFO.... since there are no "firm" correlation between the ground intercept and the sightings from the aircraft, it is impossible to make any determination from the information submitted. On the other hand, it

is difficult to conclude that nothing was present, in face of the visual and other data present.⁷

No conclusions could be drawn in this report but the author seemed convinced that there may have been something present.

Resurrection

The Condon study inadvertently resurrected this case. Lewis Chase was the UFO officer at Malmstrom and he attended a meeting with the Condon representatives and Blue Book. He requested that Major Quintanilla look for the records and it caught the interest of Dr. Roy Craig. Unfortunately, Chase could not recall the date and thought it was in September 1957. The records were not found until Dr. McDonald spent time with the Blue Book files after the Condon Study was completed. It was Dr. McDonald's work that first elevated this case to the status of "best evidence".

Notes and References

1. [USAF Project Blue Book - UFO investigations.](http://www.fold3.com/image/#6961844)
Fold 3 Web site. Available WWW: <http://www.fold3.com/image/#6961844>
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Various theories for the UFO lights

One of the most interesting aspects of the RB-47 is the source of the lights that Major Chase reported seeing. According to Phil Klass, it was just an airliner that produced the light.

The end of the flight 966 myth

Phil Klass did a lot of work trying to locate the actual plane that the RB-47 had seen over Dallas-Fort Worth. He had contacted somebody from American Airlines in 1971 and they had confirmed that 966 was supposed to land in Dallas at 6AM Central time. Klass felt that the landing lights of the plane were the cause of the lights seen by Chase. But the case was not that solid. When asked by Dr. Hynek if the landing lights could have fooled him, Major Chase stated:

Not unless aimed at you. That aircraft would have been in some kind of climb. If the aircraft is landing, no way do his lights seem much brighter than a car on the freeway.¹

Brad Sparks determined that flight 966 could not have been in the area at the time of the RB-47 encounter because it was too far away. It had a near miss with flight 655 near El Paso at 3:30 AM MST. The plane could not make up the distance during that time. Was it late or is there a reasonable explanation?

In 1957, Daylight savings time was a

*American Airlines
Flight 966
1957*

ARR	DALLAS	6 AM
Dept.	DALLAS	7 AM
ARR	New Orleans	8:48
Dep	New Orleans	9:25
ARR	Tampa	12:20
Dep	Tampa	12:40
ARR	Miami	1:39 p.m.

Klass' notes regarding flight #966²

problem. Different states and cities had different rules. It made for great confusion on airline, train, and bus schedules. The encounter had occurred before 1100Z. If Dallas

were on Daylight Savings Time (CDT), that would have been 0600. However, it wasn't. I checked several newspapers from Texas in July 1957 and all listed the times for Sunrise and Sunset as Standard Time (see weather above from Denton Record-Chronicle on July 17, 1957³). This means 1100Z was actually 0500 CST. Flight 966 was not scheduled to land until an hour later just as Sparks computed. Klass' information was correct but he made an error when he thought 1100Z was 6AM in Dallas.

TEXAS
(Experiment Station Report)
High Tuesday 99
Low this morning 75
High year ago 103
Low year ago 78
Sun sets today at 7:35 p.m.; rises Thursday at 5:32 a.m. Fishing —
Fair.

The description of the lights

Dr. McDonald's interviews with the Co-pilot McCoid and Chase are interesting. His notes regarding his phone calls with Chase state:

I asked him if he any impression of angular size of the red light, when it showed a red light moving over ahead of him. He wouldn't hazard a guess, except he did say it was far larger than any running light on a jet at the known 10-mile distance which radar was indicating. He also said it was not flashing or pulsating like a running light.⁴

His notes with McCoid mention a description of the light as well:

He brought up, voluntarily, the matter of gas burn-off flames from oil wells. He said that he had frequently seen them and, as soon as the phenomenon began, it went through his mind that he should be very careful to be dead sure that he wasn't looking at any burn-off flames. He then stated that the intensity of the light, and its elevation angle (strictly below the horizon) ruled such flames as a source, in his mind...He recalled that the Unknown was, at times, distinctly above their level. Definitely too far above the horizon to confuse it with oil well flames.⁵

WEATHER

DENTON AND VICINITY: Clear to partly cloudy Wednesday and Thursday with chances of a few isolated afternoon and nighttime thunderstorms. No marked change in temperatures.

WEST TEXAS: Clear to partly cloudy and warm.

EAST, SOUTH, CENTRAL TEXAS: Clear to partly cloudy and warm.

TEMPERATURES:

(Experiment Station Report)
High Tuesday 99
Low this morning 75
High year ago 103
Low year ago 78
Sun sets today at 7:35 p.m.; rises Thursday at 5:32 a.m. Fishing —
Fair.

Throughout the interviews, both Chase and McCoid implied the angular size of the light was not that large and usually refrained from estimating an angular size. It was perhaps a bit larger than the landing lights of an aircraft but there seemed to be little angular size to it. As a result, one can assume the only thing the witnesses saw was a bright light.

The description of where in the sky the object was is confusing because McCoid seems to state the light was above and below the horizon. Chase implies it was below the horizon. Perhaps McCoid was confusing memories of the 1010 meteor event with the later events around Dallas-Fort Worth. In his letters with Dr. Hynek, Chase could not recall if the light was above or below the horizon. He told Klass he felt the light was about 5000 feet below him and, at one point, was as low as 15,000 feet.

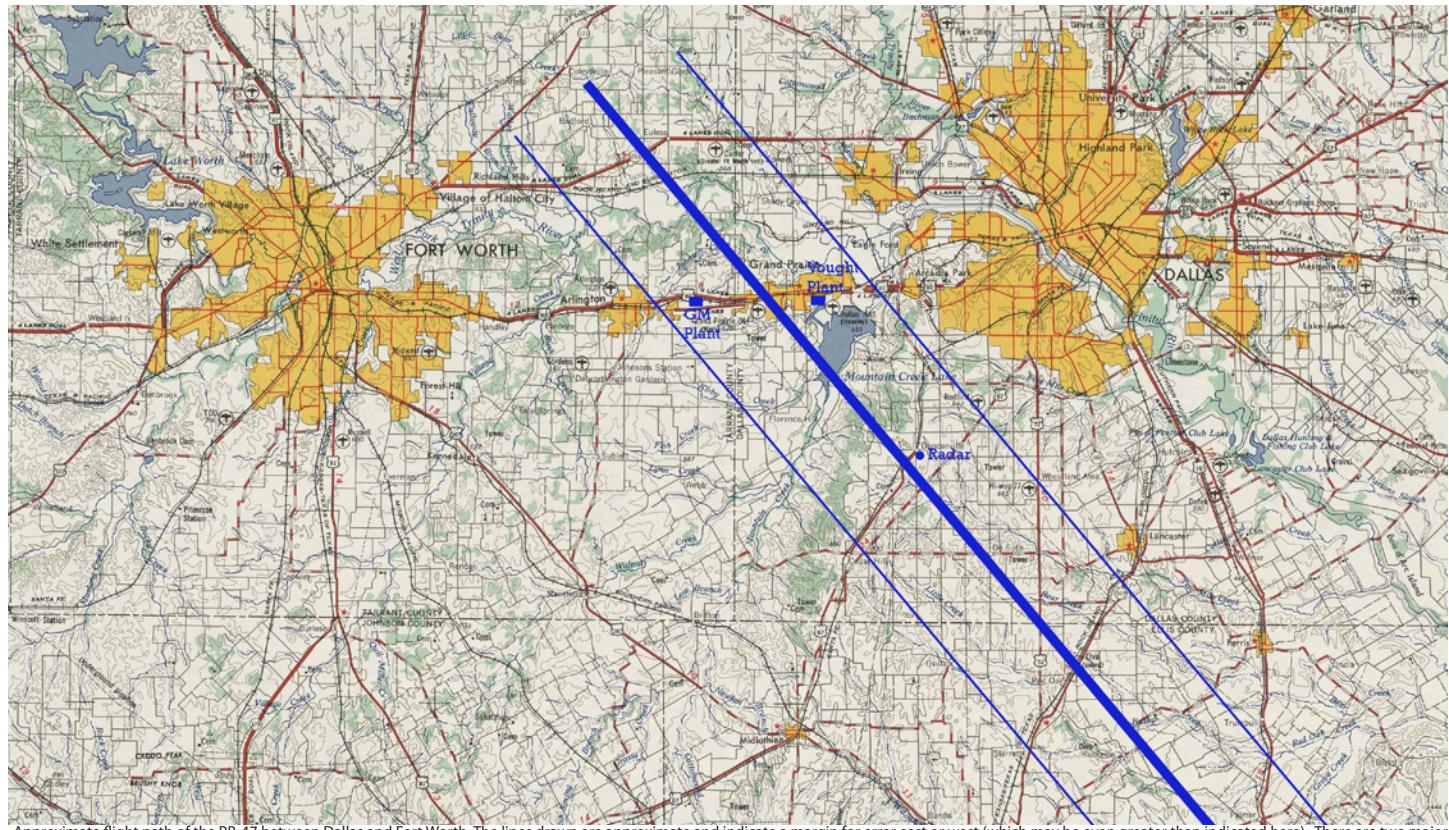
What this all indicates is the light was probably below 34,500 feet and not above the horizon. So, what was the source of the light?

Potential Sources

I have gone down a path of many possible scenarios for the light. Here are a

few possibilities that I and other skeptics considered and why some were rejected as not plausible:

1. The moon reflecting off of something. This seemed highly unlikely but there was a bright waning moon in the southwestern sky. What ever this light reflected off would have to be airborne and the only thought was clouds or ice crystals. This is very unlikely.
2. A red spot aurora could have been involved. This seemed to have merit in that there was increased solar activity that year but there was no record of widespread auroras visible on the date in question. Additionally, the bright moon and approaching dawn would have washed out most aurorae.
3. Astronomical objects were proposed by Klass but the sky was rapidly brightening with sunrise less than an hour away when the plane began its pursuit phase. Even first magnitude stars would start to lose their brilliance by the time the plane was flying over Dallas at time 1050Z. Additionally, the pilot/copilot all agreed the light was below the horizon mak-
4. The light of a train heading south-bound. This was an interesting idea and there are tracks for the southern pacific headed towards New Orleans from Fort Worth. Still, I felt that a train is a stretch unless it had a high beam searchlight that pointed skyward.
5. The Condon study at one point suggested the light was an optical phenomena involving the city lights of Oklahoma City. They rejected this after further analysis. I mention it here for information purposes only. I never considered this as a plausible explanation.
6. Gas burn-off flames or a ground fire of some kind. McCoid described the light being similar. There are no records of any fires but it is interesting to note that there was a General Motors plant on the eastern side of Arlington along the RB-47's flight path. It seems unlikely they would have some sort of gas burn-off flame but there may have had another light source at the plant.





1958 aerial photograph of Dallas NAS. Various aircraft are visible including F-8 crusaders coming off the production plant line and P-2 Neptunes.⁷

7. Another plane taking off or landing. While Dallas had Love Field, Fort Worth had created its own airport and had called it the Greater Southwestern airport. It is no longer in existence but was to the south of what is now DFW international airport. In 1957, it was fairly active. The RB-47 flight path takes it over this area.
8. Dallas Naval Air station was also along the RB-47 flight path. Dallas NAS was often used as a way point for aircraft making cross country trips. Located at Dallas NAS were two reserve squadrons of P2V Neptunes. The P2V had a large searchlight on the starboard wing tip of the aircraft. Seen from a distance, the searchlight would have been unusual.

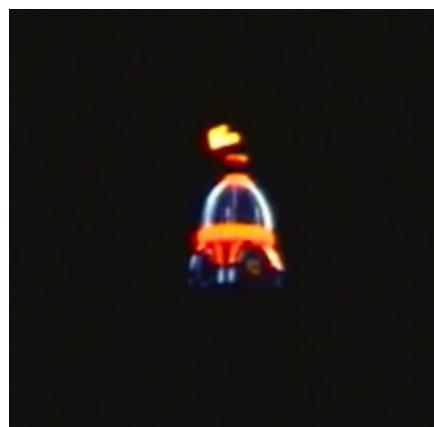


P-2 Neptunes on the flight line at NAS Dallas in 1960⁸

9. The U-2 was mentioned at one point but it seems very unlikely to be the source. The plane would have to have been higher than the RB-47 and possibly reflecting the sun. There were U-2s in southern Texas but they were probably painted black and would not reflect the sun before sunrise when flying at 15,000-30,000 feet.
10. An RB-69A. This was a CIA modified P2V Neptune aircraft that would

eventually be used in Taiwan and Europe. The airplane had some unique equipment (including side-looking radar and high intensity lights) and was built at the "skunk works". In 1957, one of the RB-69As were flown to Eglin AFB in Florida for testing and may have had to make a stop at Dallas NAS. The other aircraft would eventually have been flown to Eglin as well. What are the chances of one of these planes being in the area of Fort Worth in July of 1957? If it was in the area that morning and involved in some way, it would explain the need not to have the aircraft mentioned in any reports. While this is compelling, it seems like the odds of it being involved is low. It is an avenue for future investigation.

11. At Dallas NAS was the Vought plant where the new F-8 crusaders were being built. The day before, John Glenn had just broken the cross country speed record in one of these F-8s. An F-8 may have been flying about that early in the morning with lighting the pilots were not familiar with. This is a low probability scenario but can not be completely dismissed.
12. Some unusual ground lighting the pilots were not familiar with. South of Grand Prairie airport (the 1957 airfield and not the one currently using that name) is a water tower. It is possible this had illumination that might have been confusing. Additionally, the city of Fort Worth seemed to have a large quantity of neon lighting downtown similar to one might expect from some place like Las Vegas.⁹ (See frame grab below)



13. An unknown man-made aircraft in

the area.

So, what was the light? I really don't know but there are many possibilities. In my opinion, I think it probably was an aircraft of some kind and the P-2V Neptune with its searchlight beam is a good candidate to start with. It also might have been just an aircraft landing at or taking off from Great Southwestern airport or Dallas NAS. We really will never know at this point without the actual records of aircraft activity on the date in question. It is interesting that the handwritten summary stated the CAA had confirmed the aircraft was an airliner (but not flight 966).

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RB47 conclusions

Is the case solved? I would never suggest so unless there was much more evidence as to aerial activities that morning. As a result, the case is still "unidentified" so UFOlogists can rest easy on that point. Of course, that is what the definition of a UFO is, right? In this case, the visual was apparently flying and nobody can positively identify it.

Skeptics have no problems accepting the fact the case can not be positively identified. However, it is the proponents that seem to have a problem with a case just having the label of "unidentified". To have such a label is not good enough. They have to draw conclusions that the evidence does not support.

In the conclusion of his article, Sparks states the case is "irrefutable" and the evidence is "unassailable". I find such statements hyperbole, which have no place in a scientific endeavour. However, in the following conclusion, one has to wonder what data he is looking at:

This mass of strikingly self-consistent data demonstrates the existence of a large metallic rapidly maneuvering airborne source of S-band radar like signals and visible light - a UFO - that played tag with an Air Force intelligence-gathering jet for more than two hours on the night of July 17, 1957, across four states in the southern United States.¹

He states this as if this was proven without a doubt. Objective observers would state that he has not come close to proving this conclusion and that he has rejected other possibilities without good reason.

The greatest UFO case ever?

This case is being billed as the best evidence for UFOs being some form of exotic unknown phenomenon based mostly on what Sparks wrote about the case. This overinflated claim seems to have been simply accepted without questioning it. There are several reasons to question this claim:

1. We do not know if all the signals reported were the same exact frequency and same characteristics. It is assumed that this is the case but there is no proof this is so. They could just as easily have been in the same frequency range but not the same exact frequency as the signal mentioned in the Piwetz report.

2. For a majority of the signals, there seems to be radars located along those bearings that might have been detected by the RB-47. Only the signals at time 1030, 1042 and 1044 seem to have questionable radar sources. Since we don't know exactly what the plane's heading was at that instant, what the exact frequency of the signals were for those bearings, and what the exact conditions were for radio wave propagation, can we really conclude that these radar signals were emitted by some "unknown airborne intelligence"?
3. Sparks claims the UFO was large and metallic. However, the witnesses all stated the light/UFO sighted was of small angular size. It never was seen as a physical craft of any kind even when the plane was reasonably close. Is a point source of light really something to get that excited about?
4. Contrary to what Sparks stated, the UFO sighted never appeared to make any exotic maneuvers. There were statements it paced the aircraft but this is not stated in any of the reports from 1957. There are no indications the visually observed UFO flew loops, stopped on a dime, or zigzagged about. It was just a light that was seen, and when the RB-47 got near the UFO, it disappeared. This makes it nothing more than a nocturnal light, which Dr. Hynek considered to be a waste of time: "We can forget about all this lights-in-the-sky stuff, which we can't do anything about anyway..."
5. There are no UFO reports mentioned by anybody but the crew. One would think a UFO that could be seen from dozens of miles away over a major metropolis like Fort Worth-

Dallas, might generate some reports even at that hour of the morning. There were four control towers that were manned in the area (Carswell, Greater Southwestern, Dallas NAS and Love field). Add to this list of potential witnesses were the military personnel on duty at Dallas NAS and Carswell AFB, police officers, early morning commuters, civilian pilots, etc. One wonders why there were no other UFO reports. Additionally, one would expect that some technicians at Duncanville, might go out and see if they could see the RB-47 chasing the UFO as it passed nearby. The lack of any confirming reports indicate the UFO was not as obvious to ground based observers as it was to those in the plane.

It appears that Sparks' characterization of the "data" and what it proves is just not accurate.

In 1997, UFOlogists presented several of their "best cases" to a panel of scientists. Strangely, the RB-47 case was not one of their primary cases (it was mentioned briefly in the paper about the Condon Study). Is it possible that it has received the label of "the best evidence" because it is now the "flavor of the month"? I can recall reading UFO experts say the same thing about other cases before evidence was unearthed showing they were not as compelling as first thought.

We do know the case was examined to some extent by the Condon study with the conclusion they could not explain it. However, they also realized that it did not mean the case involved some supernatural event/intelligence. Writing in his book, *UFOs: An insider's view of the official quest for evidence*, Dr. Roy Craig wrote:

Are we left with only the extraordinary conclusion, or do misinterpretation of observations and vagueness of memory open the door to explanation in terms of the ordinary?²

In my opinion, this latter scenario is more plausible. When faced with choosing between the two scenarios of misinterpretation of events by the witnesses and the presence of some "unknown intelligence" emitting radio waves that acted like a

ground radar in use at the time, one will tend to conclude that misinterpretation is more likely.

I doubt that most UFOlogists will side with this type of reasoning. This approach was noted in the Condon study:

....others who desire to have a residue of unexplained cases in order to add mystery and importance to the UFO problem incline to set impossibly high standards of certainty in the evidence before they are willing to accept a simple explanation for a report.⁴

If only these UFOlogists set equally high standards for evidence that an "unknown intelligence" was involved. In my opinion, the evidence in the RB-47 case is inadequate to draw this kind of a conclusion.

Lipstick on a pig?

Some might suggest that I have simply "put more lipstick on the same pig" (the pig being Klass' explanation). I disagree. My original goal was to evaluate the two arguments presented in the case. In my opinion, I have done this and have determined that nobody has positively established a direct link between the radar signals and the nocturnal light. There seems to be other potential sources for the radar signals and the observed light. All the incidents can be potentially explained and Klass' argument, while containing some flaws and requiring some tweaking, is still an adequate answer to the RB-47 case.

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The RB-47 contacts from 1955

In Sparks' article, he describes several incidents where RB-47s had similar encounters with unknown objects in June 1955. The implication is that these incidents were the same types of UFOs monitoring/harassing the USAF and, therefore, are considered confirming evidence for the RB-47 case. But are can one really link these incidents with the RB-47 case?

The messages can be found at <http://www.nicap.org/docs/ufo00031.pdf> and describes four incidents:

1. The first incident occurred on 1-2 June 1955. An RB-47 flying over the polar regions near Devon Island received indications that it was being swept by a radar using the RB-47's K-system. Additionally, the RB-47's gun radar detected a bright return. This also happened in the same general area on the return leg of the flight. At this point, the gun radar had contact at 8,000 yards. No visual sighting was made.
2. The second incident involved another RB-47 on 4 June 1955 in the Melville sound area. Once again, the RB-47 gun radar had a contact (this time at 7,000 yards) but a visual sighting of a bright metallic-looking object was seen to the rear of the plane. Contrails (apparently from the RB-47) hid the intruder. Photographs were taken but they were so poor in quality, nothing could be learned from them.
3. The third event occurred on June 7th. This time it was near Banks Island. The gun radar of an RB-47 once again detected a contact at 3500 yards. The pilot thought it was some form of jamming. No visual or K-sys-

tem contacts were reported.

4. The fourth and final event happened on 8 June. This RB-47's gun radar once again detected something but only briefly. The K-system detected another radar apparently sweeping the plane. The crew reported seeing an unidentified aircraft about 5-10,000 feet above and 5-10 miles to the rear. A contrail was sighted by a second RB-47 trailing the original RB-47 from 80 miles away (Do UFOs actually leave contrails?).

The funny thing about all of these signals is there are no actual radar signal descriptions. We get hints of potential radar sweeps but we do not even know what frequency bands they came from. While these are interesting, one can not truly link these events to the RB-47 case since there is not enough information. Additionally, one has to wonder why the ECM operators in the pod did not record the characteristics of the intermittent radar signals. Perhaps they saw nothing of significance and the only thing that saw the signals were the K-system radar sensors which gave indications of intermittent radar sweeps. Perhaps this was an equipment issue. Was the equipment prone to giving false positives under certain conditions? Was there something in the area that could have caused the false positives? It is interesting that all of these incidents happened near the Arctic circle.

Additionally, the use of active airborne radar was not something new. Various fighter interceptors and search aircraft had radar in 1955. What prevented these signals and sightings being something from the Canadian or US Air Force/Navy? Trying to link these incidents of brief radar contacts and minimal information to the RB-47 case in July of 1957 is simply wishful thinking. There is just not enough information to link the two together.



While reading the letters between Phil Klass and Lewis Chase, I was amused to read some of their exchanges. Chase began the letter exchange with Klass encouraged that he was performing an in-depth study of the case and looking at all the possibilities. Eventually, Klass would reveal information that would make Lewis Chase's blood boil. I felt that this exchange needed to be described for the readers to demonstrate how Klass and Chase were at opposite ends when it came to the USAF and UFOs.

No Radar contacts?

When Phil Klass mentioned that Duncanville stated they had no radar contacts, Chase became rather upset:

AN ABSOLUTE FALSEHOOD! THEY WERE OBSERVING THE OBJECT AND REPORTING IT TO US AS THE INCIDENT OCCURRED.¹

Chase would then make the following accusations about Blue Book, the USAF, and the UFO 'problem':

Phil: Remember the attitude of officialdom at the time. Ridicule everything we can not explain. The word was out at that time – to include Blue Book! You've overlooked a key element in the intelligence report – Raven #3 recorded all conversation. The wire recording was confiscated upon landing and never heard of again. Another CO not going to appear foolish to the brass? Why didn't it go to Blue Book?²

Because Klass brought up this message and suggested the CO of Duncanville might have identified the contact as an airplane, Chase questioned Klass' objectivity:

I have the distinct impression you have long since made up your mind on the answer to this incident – and have allowed your emotion to affect your objectivity.... Doesn't that put you in the same position that you believe McDonald was in?....

Let me again state my feelings – Something tremendously out of the ordinary happened that night...No one has given me any explanation of what happened, although I did think you had made a good start. Certainly there is a good explanation for all that happened – but it has to be together scientifically and logically.³

Phil Klass vs Lewis Chase and how it relates to the Echo/Oscar flight shutdowns

Klass would respond describing his skeptical position and how he naturally tends to question exotic reports no matter who makes them. Chase would apologize for "stepping on toes" and reacting emotionally. But he would state why he felt this way:

I've been ridiculed for a great number of years for just reporting what happened as the crew saw it (underline). But when you shake your finger at me Phil and say you don't believe this could have happened in the service then I figure you don't know what went on at that time. I like very much your explanation of how the UTAH commander could have made his decision to report negative contact. But regardless of what he reported, the crew knows what UTAH reported that night! definite, concrete painting with no mention of an airliner!

OK, I'll do my best to be objective, but I'll admit I have sore toes. Hell Phil, I'm the last one to think we've had outer space visitors, but I do say I wouldn't shrug off what happened that night without a good solid explanation or an acceptable possibility....⁴

Finally, Chase made accusations about Blue Book and the USAF regarding any recordings made by the crew:

This was certainly available to SAC Hqs, Blue Book, Air Force, etc. Where did it go Phil? Doesn't it strike you as being a little strange that:

a) SAC never said word one to anyone about the incident. We were Books, maybe?

b) Project Blue Book, in their thorough investigation, never thought the crew was worth talking to, nor ever requested one piece of information???

c) No operational personnel or the wing CO considered it all – except to ridicule the crew.

How would you react Phil? Would you consider the possibility of cover up? I gave

Air Force the credit at the time, thinking it was new equipment of our own! Later I get angry when the information is not available to support the crew. Might you think 'cover up'?⁵

Klass would respond:

Project Blue Book was generally staffed with "clay pigeons" and was considered a comfortable berth, in which one could, after leaving, write a UFO book and make some \$\$\$, like Captain Ruppelt....if you or I had been chief of SAC, I doubt that he would have given any attention to the report of an RB-47 encounter with a UFO in the summer of 1957. There were simply far more pressing problems to face....⁶

This would be Chase and Klass last exchange of lengthy letters. Chase seemed to have had enough of discussing the case in detail and when Klass sent him copies of his analysis, he simply responded that Klass did a thorough and excellent job on it.

Is Chase a liar?

Lewis Chase's emotional exchanges with Klass demonstrates to me that he would never stand for being part of any lie or cover-up. However, this is exactly what he has been accused of recently.

Chase was the UFO officer at Malmstrom AF base during the Echo Flight shutdown incident and had told Dr. Roy Craig there was no UFO involvement. Because Robert Salas has used this case to prop up his "Oscar flight shutdown" UFO case (of which there is no record anywhere), he has decided to call Chase a liar:

Within a few days, Chase replied. "This office has no knowledge of equipment malfunctions and abnormalities in equipment during the period of reported UFO sightings. No validity can be established to the statement that a classified government experiment was in progress or that military and civilian personnel were requested not discuss what they had seen."

These are blatantly false statements since I and others can attest that we were ordered not to talk to anyone about our incident and that our equipment certainly did malfunction. And, if it had been a military experiment, we would have since had

the capability of easily disabling nuclear missiles at will.

This correspondence was written after the Condon Committee meeting with the Air Force Base UFO officers. Since Chase was obviously not disclosing the missile shutdown incidents even to another Air Force office, clearly the cover-up was ongoing, and he was in the middle of it. By the time Roy Craig came to ask questions about the Echo Flight incident, Lt. Col. Chase would know what he was expected to do.

....Chase lied to Craig about UFO involvement in the Echo incident and did not mention the fact that Oscar flight was disabled on March 24.⁷

Based on Chase's comments to Klass, it appears that he would never stand for being part of this kind of chicanery. However, if Chase was knowledgeable about or participated in such a cover-up, why didn't he just tell Klass about it as evidence this kind of thing happened all the time. Instead, Lewis Chase never mentioned it as if it never happened. Indirectly, Chase has pointed out the missile shutdown at Echo (as well as the mythical Oscar event) never involved UFOs.

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UFOlogy drops the ball!

In an article on NICAP's web site, Brad Sparks makes the following bold proclamation:

It is ironic that the SETI project attempts to detect radio signals from civilizations around distant stars many light-years away from earth, and SETI scientists are very hostile and dismissive of the UFO phenomenon. Yet here we have a UFO transmitting radio signals from only 10 miles away from an RB-47 spy plane. One would think SETI would be interested in this very-close-to-home type of evidence.¹

According to Sparks and all those that have proclaimed this case is the most important UFO case ever, I wonder why they feel that only SETI can detect this UFO signal? Why is it that Sparks et. al. want SETI to do their work for them? I was told that skeptics need to put up or shut up about explaining all UFO cases. The counter argument is that it is time for UFOlogists to put up or shut up regarding these cases. Presenting a mystery from over fifty years ago and then asking skeptics to explain it to their satisfaction is a win-win scenario for them. They don't have to do anything other than create something mysterious and find reason not to accept any potential explanations. If they were really interested in scientific research of UFOs they would do something more than just create a mystery.

SETI for amateurs

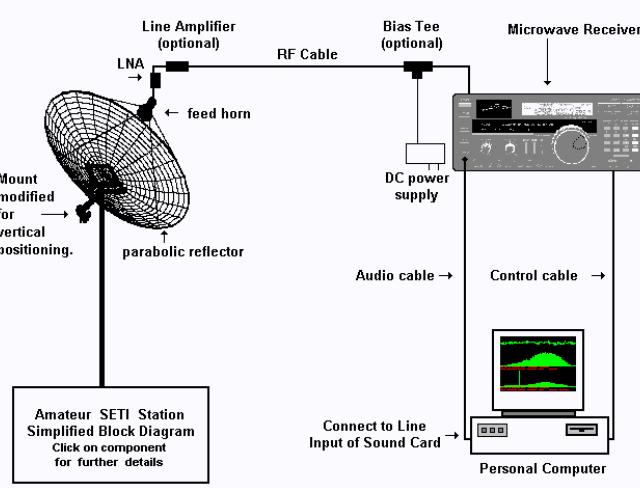
Amateur astronomers have been developing and operating radio receiv-

ers for receiving deep space signals for some time now. The SETI league technical manual describes how to build a radio receiver for detecting signals up to 2GHZ. While this unit can not detect the radar signals seen in the RB-47 case, it would only require a receiver that could tune to the 3GHZ frequency to make it capable of doing so.

Why haven't UFOlogists developed an array of receivers to detect this kind of UFO signature in the past decade? Certainly, UFOlogy's greatest minds, like Brad Sparks, could create a simple network such as this. Like the technology that is present today to record UFOs with high quality video equipment, the technology exists for UFOlogists to look for these specific radar signals. When Brad Sparks makes claims about scientists ignoring data when he could gather more data to back up his, in my opinion, overinflated claims of "scientific proof", I just shake my head. This kind of behavior is so typical for UFOlogists.

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UFOs on the tube

UFO Files: Real UFOs

The last two months saw no new UFO programs on television. So, I watched a 2010 program about "real UFOs" on the history channel.

The show started with the old Nazi UFO myth. Old photographs and artwork that supposedly show the top secret flying saucers developed by the Nazis were presented. Scientists were named and speculation was rampant. It is too bad that Kevin McClure was not part of the interviews. He had pretty much shot down the Nazi UFO stories some time ago and his article can be found at the Magonia web site. A lot of the names were brought up again trying to rekindle the stories. Supposedly, all these scientists made their way to the US or the Soviet Union where they continued their research.

The show then jumps to 1947, where Roswell and Kenneth Arnold were briefly mentioned. There was an accurate description of how the USAF tried to link the Horton design with the Arnold sighting. The script then jumped to various testing that had happened in the Southwestern US including Project MOGUL. I found this part of the show fairly accurate.

The program then tried to make much about the AVROCAR story and how the designers believed that it was possible to build a supersonic flying saucer. However, when the AVROCAR failed, the US was supposedly able to seize all the secrets that the company had uncovered regarding the supersonic capabilities of these saucer shaped craft.

Those secrets were apparently used to build actual working flying saucers. The source of this information is one Jack Pickett, who saw all these flying saucers at McDill AFB in the 1950s. They were, according to UFO writer Mike Shratt, capable of flying at 16,500 mph and going into space! Almost all of this information can be traced back to Jack Pickett, who really can't prove his claim. The only evidence provided to support his story is a taped recording of a retired pilot by the name of Warren Botts.

Warren Botts says he was attending a pilot's reunion at Wright-Patterson when he simply wandered into a secure hanger and saw one of these flying saucers. After looking it over, an armed guard appeared and chased him away. One has to wonder what the guard was doing if he allowed a civilian to simply wander into the hanger he was guarding. The story reeks of a tall tale and, like Pickett's story, is just not credible.

The show concludes with discussions about the F-117 stealth fighter. Engineer Alan Brown was interviewed and he stated he was cynical of UFO stories and felt the only real UFOs were ones designed and built by the United States. He did not appear to mean they were the kinds of craft described by Pickett but the kinds of craft like the F-117.

After discussing how unmanned aircraft are the future of advanced design, the show noted that even the latest craft do not appear to be anything like the advanced designs described in the Nazi UFO myth. In fact, the narrator correctly points out, "Perhaps the science of flying saucers was never a reality" and follows it up with AVRO aeronautical engineer, Doug Garland's statement about the saucer shape, "As long as you stay close to the ground, you got yourself an effective lifting device. It does not make an effective lifting device in free air". He then made the comment that saucer-shaped craft flying at supersonic speeds were essentially "figments of the imagination".

Just when the show looked like it might have put a nail in the coffin about this, Mike Shratt reappeared and demanded the US government release all its records about the saucer shaped craft described by Pickett. Shratt, like so many UFOlogists, was grandstanding for the camera with his conspiracy theory.

The program was OK but I would have preferred to have seen a complete debunking of the Nazi UFO and Pickett tales. Both of these parts of the program have no basis in fact and a better program would have been for producers to debunk these outrageous stories.

Book Reviews

Buy it! (No UFO library should do without it)

Psychic Vibrations - Robert Sheaffer.

This latest offering from Mr. Sheaffer is well worth looking at and has plenty of good material for somebody researching the history of UFOs. It is a collection of his "Psychic vibrations" column from *Skeptical Inquirer* over the years. I had to chuckle as I read through the various bits and pieces. One quickly realizes, after reading the older entries, that *UFOlogy* tends to repeat itself.

Borrow it. (Worth checking out of library or borrowing from a friend)

UFO Crash Secrets at Wright/Patterson Air Force Base - James Moseley

Last issue, I gave a good plug for Moseley's book. This book is very similar and appears to have been a rougher version for what was to come. It still contains some very good tidbits that are worth going through once. However, I would not consider this opus anything vital to a UFO library.

Bin it! (Not worth the paper it is written upon - send to recycle bin)

Situation Red: The UFO Siege - Leonard Stringfield.

I bought this book long ago in a used book store. I did not find it very compelling back then and still don't find it so today. It documents the UFO wave of the early 1970s from Stringfield's point of view but I found nothing new here. The chapter on "scientific *UFOlogy*" contains very little science. It is just a bunch of opinions from *UFOlogists* with scientific backgrounds. Stringfield then makes the claim that "scientific *UFOlogy*" was seriously studying all these cases. Unfortunately, "scientific *UFOlogy*" has done nothing. The rest of the book is more of the usual UFO claims that get repeated over and over again as if they were proven facts. It presented nothing really new and was not worth the effort to read.